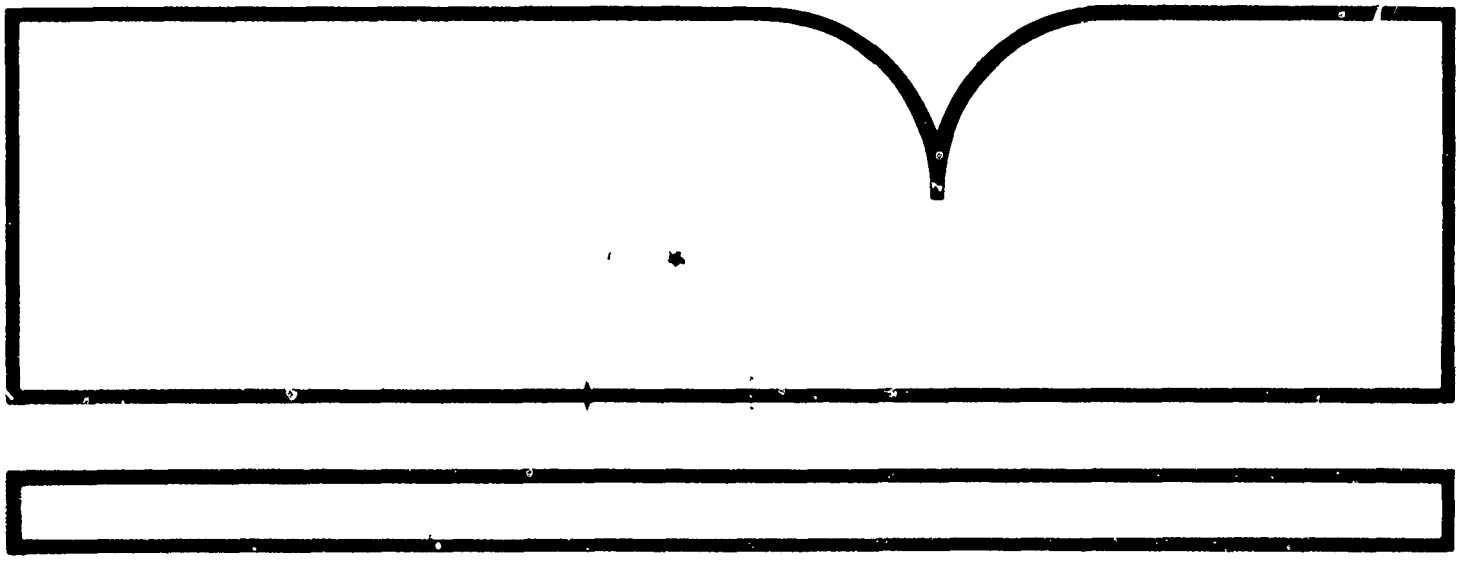
PROGRAM OBJECTIVES MEMORANDUM DATA BASE MANAGEMENT SYSTEM (POM-DBMS)

K. A. Waslov, et al

Decisions And Designs Incorporation
McLean, VA

May 81

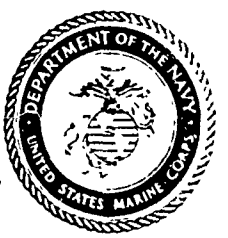


PROGRAM OBJECTIVES MEMORANDUM DATA BASE MANAGEMENT SYSTEM (POM–DBMS)

HQMC DOCUMENT NO.
80C047 - UM-01

USERS MANUAL

HEADQUARTERS,
UNITED STATES
MARINE CORPS
WASHINGTON, D.C.



Prepared by
Kathleen A. Waslov and Kenneth P. Kuskey
Decisions and Designs, Inc.
8400 Westpark Drive
McLean, Virginia 22101
(DDI Users Manual UM 81-1-158)

HEADQUARTERS
UNITED STATES MARINE CORPS
WASHINGTON, D.C.

Program Objectives Memorandum Data Base Management System (POM–DBMS)

Users Manual

May 1981
HQMC DOCUMENT NO.
80C047
UM-01

Prepared for
Commandant of the Marine Corps (RPP)

Prepared by
Decisions and Designs, Inc.
Under Contract No.
M00027-80-C-0047

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER UM-81-1-158	2. GOVT ACCESSION NO. AD-A101695	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) PROGRAM OBJECTIVES MEMORANDUM DATA BASE MANAGEMENT SYSTEM (POM-DBMS), USERS MANUAL		5. TYPE OF REPORT & PERIOD COVERED Users Manual 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Kathleen A. Waslov Kenneth P. Kuskey		8. CONTRACT OR GRANT NUMBER(s) MDA903-80-C-0047
9. PERFORMING ORGANIZATION NAME AND ADDRESS Decisions and Designs, Inc. Suite 600, 8400 Westpark Drive, P. O. Box 907 McLean, VA 22101		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Commandant of the Marine Corps Headquarters, United States Marine Corps Code RPP-2, Washington, DC 20380		12. REPORT DATE May 1981 13. NUMBER OF PAGES 93
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

See related report, Decision-Analytic Support of the United States Marine Corps' Program Development: A Guide to the Methodology, PR 81-6-158.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Program Objectives Memorandum (POM)
Data base management systems
Budgeting
Military budgets
Marine Corps planning
Users manual

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The POM-development process at Marine Corps Headquarters (HQMC) is the focal point for annually reassessing the Marine Corps' (MC's) overall priorities for present and future spending. Approximately 450 individual programs compete for programmed funds during each year's POM cycle. Since 1977, HQMC has sponsored the development of a data base management system (DBMS) to support the staff of the Deputy Chief of Staff for Requirements and Programs as it prepares the Commandant's (CMC's) POM Submission to the Secretary of the Navy.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

The POM DBMS is HQMC's central repository of priority and cost information during POM development, and it is the MC staff's primary tool for constructing and adjusting the CMC's program for the MC. The POM DBMS is used (1) to develop the CMC's POM submission to the Department of the Navy; (2) to determine appropriation controls for the CMC's program; and (3) to provide program-element detail on the CMC's program to aid in the preparation of updates to the Five Year Defense Program. The system supports the MC staff throughout the POM development, including the collection of data, the prioritization of initiatives, the packaging of initiatives into a program of consolidated decision package sets and the revision of this program based on the Secretary of Defense's Program Decision Memorandum and Amended Program Decision Memorandum. It is also used in the POM-to-budget process to determine MC apppropriation controls.

The objective of the Users Manual for the POM DBMS is to provide the user's non-ADP personnel with the information necessary to effectively use the system.

ACKNOWLEDGMENTS

The POM DBMS system was developed at Decisions and Designs, Incorporated, by several individuals. Since 1977, approximately 20 person-months of effort have gone into the development of the program system. The programmers who contributed to the system's development were, in chronological order, Jim Allen, Jan Ragland, Brad Peterson, Dorothy Amey, and Robert Esoda. The decision analysts who provided functional specifications during the development were Dennis Buede and Kenneth Kuskey. The major portion of this Users Manual (Section 3.0) was written by Kathleen Waslov. The Program Maintenance Manual was written by Robert Esoda.

ABSTRACT

The POM-development process at Marine Corps Headquarters (HQMC) is the focal point for annually reassessing the Marine Corps' (MC's) overall priorities for present and future spending. Approximately 450 individual programs compete for programmed funds during each year's POM cycle. Since 1977, HQMC has sponsored the development of a data base management system (DBMS) to support the staff of the Deputy Chief of Staff for Requirements and Programs as it prepares the Commandant's (CMC's) POM Submission to the Secretary of the Navy.

The POM DBMS is HQMC's central repository of priority and cost information during POM development, and it is the MC staff's primary tool for constructing and adjusting the CMC's program for the MC. The POM DBMS is used (1) to develop the CMC's POM submission to the Department of the Navy; (2) to determine appropriation controls for the CMC's program; and (3) to provide program-element detail on the CMC's program to aid in the preparation of updates to the Five Year Defense Program. The system supports the MC staff throughout the POM development, including the collection of data, the prioritization of initiatives, the packaging of initiatives into a program of consolidated decision package sets and the revision of this program based on the Secretary of Defense's Program Decision Memorandum and Amended Program Decision Memorandum. It is also used in the POM-to-budget process to determine MC appropriation controls.

The POM DBMS is a stand-alone, interactive data base management system and decision aid implemented on a micro-computer. It enables the user/operator to design and build a specialized POM data base, update the data as necessary, analyze the data, and prepare reports. The design of the user-system interface satisfies two human factors objectives: (1) the POM DBMS is almost completely forgiving of procedural and logical errors by the user, validating the user's instructions and data input before processing them; and (2) the POM DBMS is a "menu-driven" system that requires the user merely to select options from menus in order to control the system.

The system provides capabilities for (1) maintaining a data base for up to 300 items (POM programs); (2) prioritizing the items in a list ordered from most important to least; (3) categorizing each item into one of five program levels; (4) packaging the items in up to 30 consolidated decision package sets; and (5) preparing reports.

This manual provides users of the POM DBMS with the background material and the detailed instructions necessary to use and interpret the system's various functions in the system version current September 1980.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF FIGURES

SECTION 1. GENERAL

1.1 Purpose of the Users Manual. The objective of the Users Manual for the POM Data Base Management System (POM DBMS) is to provide the user's non-ADP personnel with the information necessary to effectively use the system.

1.2 Project References.

1.2.1 Background and History. The POM-development process at Marine Corps Headquarters (HQMC) is the focal point for annually reassessing the Marine Corps' (MC's) overall priorities for present and future spending. Approximately 450 individual programs compete for programmed funds during each year's POM cycle. Since 1977, HQMC has sponsored the development of a small DBMS to support the staff of the Deputy Chief of Staff for Requirements and Programs (DC/S R&P) as it prepares the Commandant's POM Submission to the Secretary of the Navy. The DBMS has evolved to support the collection of data, the prioritization of projects, the preparation of appropriation controls, and the preparation of reports for inclusion in the POM submission. This manual provides users of the POM DBMS with the background material and the detailed instructions necessary to use and interpret the system's various functions in the system version current September 1980.

Figure 1-01 portrays the software evolution that occurred from 1977 to September 1980 in terms of (1) the effort expended, (2) the increasing number of POM "topics" accounted for in the evolving methodology and DBMS, and (3) the POM cycle to which the DBMS was applied. The prototype DBMS software was written as a Defense Advanced Research Projects Agency (DARPA) research effort. The goal was to develop an initial System Specification, Functional Description, and Users Manual that could guide DBMS development. A DBMS based on the ARPA work was developed for the POM 81 cycle. Its capacity and capabilities were further expanded during the POM 82 cycle. At this point it functioned to collect data, prioritize programs, and prepare certain reports, but it did not support the packaging of programs for preparation of the POM submission. During the summer of 1980, after the POM 82 cycle, the system was extended to support this packaging. The resulting system is documented here.

The earlier system documentation prepared for DARPA under Order 3469 is as follows:

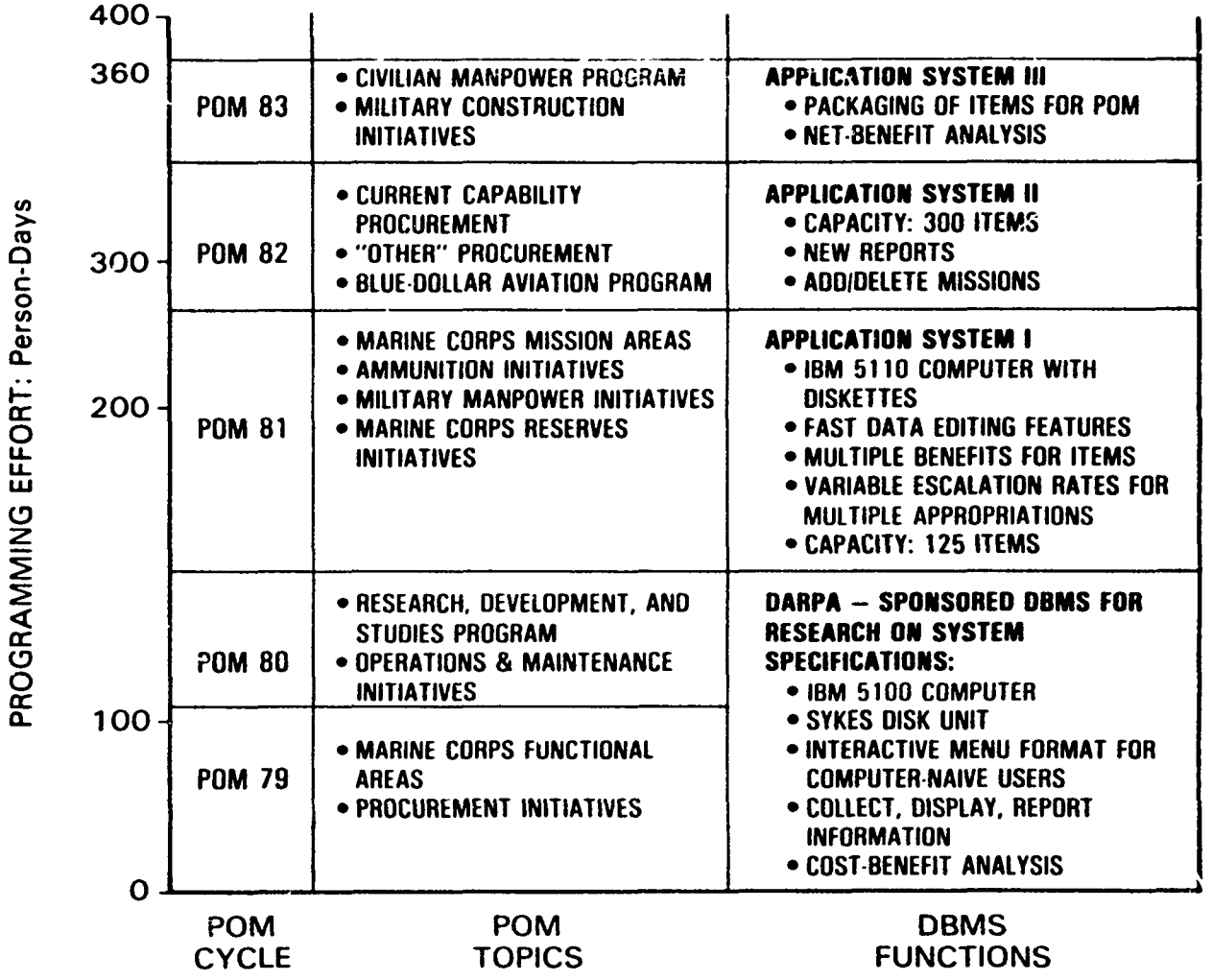


FIGURE 1-01. **POM-DBMS Development**

a. Amey, Dorothy M.; Feuerwerger, Phillip H.; Gulick, Roy M. Documentation of Decision-Aiding Software: RAM Users Manual. McLean, Virginia: Decisions and Designs, Inc., September 1979.(U)

b. Amey, Dorothy M.; Feuerwerger, Phillip H.; Gulick, Roy M. Documentation of Decision-Aiding Software: RAM Functional Description. McLean, Virginia: Decisions and Designs, Inc., September 1979.(U)

c. Amey, Dorothy M.; Feuerwerger, Phillip H.; Gulick, Roy M. Documentation of Decision-Aiding Software: RAM System Specification. McLean, Virginia: Decisions and Designs, Inc., September 1979.(U)

The sole other documentation of the POM DBMS described in this manual is a Program Maintenance Manual:

Esoda, Robert M. POM-DBMS Program Maintenance Manual. Report #UM 81-2-158. McLean, Virginia: Decisions and Designs, Inc., December 1980.(U)

1.2.2 Project Request. The preparation of the two POM DBMS manuals was requested by the Deputy Chief of Staff for Requirements and Programs, HQMC, Code RPP, Washington, D. C. 20380. They were prepared under Marine Corps contract M00027-80-C-0047 as item 0001 in accordance with Proposal P80-08, "Background Documentation for Technical Support of POM Development," submitted by Decisions and Designs, Inc. of McLean, Virginia in January 1980. A companion document, prepared under the same contract, is:

Kuskey, Kenneth P.; Waslov, Kathleen A.; and Buede, Dennis A. Decision-Analytic Support of the USMC's Program Development; A Guide to the Methodology. Final Technical Report #PR80-26-158. McLean, Virginia: Decisions and Designs, Inc., December 1980.(U)

This companion document describes the methodology for POM development that is supported by the POM DBMS.

1.3 Terms and Abbreviations. See Appendix A.

1.4 Security and Privacy. Generally, all data developed by HQMC in the POM cycle is treated "For Official Use Only"

and private to HQMC. However, the CDPS report that is included in the POM submission and all working versions leading to this report are classified SECRET by the HQMC. Since this report is readily obtained from the diskette on which the POM DBMS data are stored, this diskette merits the same classification. Because the system produces a classified report, it should be operated in a secure environment when this report is being produced.

This document itself does not contain classified material.

SECTION 2. SYSTEM SUMMARY

2.1 System Application. The POM DBMS is HQMC's central repository of priority and cost information during POM development, and it is the MC staff's primary tool for constructing and adjusting the Commandant of the Marine Corps' (CMC's) program for the MC. The POM DBMS is used (1) to develop the CMC's POM submission to the Department of the Navy; (2) to determine appropriation controls for the CMC's program; and (3) to provide program-element detail on the CMC's program to aid in the preparation of updates to the Five Year Defense Program. The system supports the MC staff throughout the POM development, including the collection of data, the prioritization of initiatives, the packaging of initiatives into a program of Consolidated Decision Package Sets (CDPS) and the revision of this program based on the Secretary of Defense's Program Decision Memorandum and Amended Program Decision Memorandum. It is also used in the POM-to-budget process to determine MC appropriation controls.

The POM DBMS is a stand-alone, interactive data base management system and decision aid implemented on a microcomputer. It enables the user/operator to design and build a specialized POM data base, update the data as necessary, analyze the data, and prepare reports. The system was designed to be operated by end users at HQMC on the staff of the DC/S R&P who may not have training in computer applications. Accordingly, the design satisfies two human factor objectives: (1) the POM DBMS is almost completely forgiving of procedural and logical errors by the user, validating the user's instructions and data input before processing them; and (2) the POM DBMS is a "menu-driven" system that requires the user merely to select options from menus in order to control the system.

2.2 System Operation. The POM DBMS is a stand-alone system operated from a single keyboard by its end users. Its users are the staff of the DC/S R&P, Code RPP. They are the source of its input and the recipients of its output.

2.3 System Configuration. The system equipment consists of a computer, printer, and diskette drive. Users can configure the system with either an IBM Model 5110 computer or an IBM Model 5120 computer. In both cases, 64K of main memory and the APL language option are required. Two typical configurations are:

a. Computer: IBM 5110-C14 with feature 1250
Diskette Unit: IBM 5114-11 with feature 3240
Printer: IBM 5103-12

b. Computer: IBM 5120-C34
Diskette Unit: Integral to the computer
Printer: IBM 5103-12

Both configurations are operated identically.

2.4 System Organization. The system consists of the equipment described in Section 2.3 and a diskette with source code and data files. The system's users can maintain several POM data bases with such diskettes, one data base per diskette.

2.5 Performance. The system's performance capabilities are:

a. Input - keyboard only, both numeric and alpha-numeric data.

b. Output - video screen displays and printed reports only. The user controls the content of displays and reports through menu selections. Headings may be input for printed reports; otherwise all data in the displays and reports are generated and formatted by the system.

c. Response time - input validation requires about three seconds per entry; screen displays require up to ten seconds; printed reports require up to thirty minutes, depending on content. When the data-base structure is created by the user, the system requires three minutes to re-initialize its diskette files.

d. Limitations - data for up to 300 POM programs can be maintained in a POM DBMS data base; only one data base can be maintained on each diskette; there is no system provision for the transfer of data from one diskette to another.

e. Error rate - all input is validated by the system for legal and logical errors, and the user is prompted for re-entry if appropriate.

f. Processing time - there are no distinct processing tasks controlled directly by the user; rather, all data processing occurs automatically as the user inputs data or requests reports. Consequently, processing time is perceived

by the user chiefly as response time, which is discussed above in paragraph (c).

g. Flexibility - the program system exists as a set of modules (APL workspaces) and data files on the system diskette. As the MC's process of POM development evolves, additional modules can be developed to access the same data files and provide new capabilities. Moreover, the hardware can be upgraded to communicate with other MC systems.

2.6 Data Base. The system provides capabilities for (1) maintaining a data base for up to 300 items (POM programs); (2) prioritizing the items in a list ordered from most important to least; (3) categorizing each item into one of five program levels; (4) packaging the items in up to thirty consolidated decision package sets; and (5) preparing reports. To provide these capabilities, the system supports several data files. Each of these files may be updated, except as indicated below. The files are discussed below in operational and functional terms. They are illustrated in Figure 2-01.

2.6.1 Item Files. The system data files for each item are:

a. Name of item - used in reports.

b. Benefit - (1) mission-area benefit is input by user; (2) overall benefit is calculated by the system. Both are used for prioritization.

c. Cost - a time profile for up to six years of up to nine types of resource (i.e., appropriation, manpower). This allows for the five program years of the POM, plus an entry for "out year" resources (if desired). The cost data is used for prioritization and for the preparation of reports.

d. Life Cycle Cost (LCC) - the user designates which of the resources are to be added together to show the items' total dollar requirements. This total is kept current for each item. The other resources may be manpower levels, research dollars, or other costs that (1) do not count against the POM budget limits, but (2) are important to track in POM development. The designation of which resources are in LCC is made when the model is created by the user; it may not be changed. LCC is used in reports; its sum for an item across the years is used to calculate the item's cost-benefit ratio and its net benefit.

ITEM FILES (300)	OTHER FILES (N/A)
NAME (1) **MISSION BENEFIT (1)** **OVERALL BENEFIT (1)** **COSTS (54):** • RESOURCES (9) • TIME PERIODS (6) **LIFE CYCLE COST (7):** • TIME PERIODS (6) **TOTAL (1)** **COST-BENEFIT RANK (1)** **FUNDING LEVEL (1)** **CDP NUMBER (1)** **PROGRAM ELEMENT NUMBERS (10)**	**MISSION NAMES (59)** **CDPS NAMES (30)** **CDPS NUMBERS (30)** **CROSS-MISSION BENEFITS (59)** **ESCALATION RATES (45):** • RESOURCES (9) • TIME PERIODS (5) **TIME-PERIOD NAMES (6)** **RESOURCE NAMES (9)**

The figure shows the files kept for each item, as well as other auxiliary files. The numbers in parentheses indicate the maximum number of data elements that can be filed. Thus a maximum of 300 items can be filed in the data base, and for each item there can be up to 54 cost data (9 resources x 6 periods). The minimum number of data elements is 1 in all cases except for program element numbers, CDPS names, and CDPS numbers, where it may be 0.

FIGURE 2-01. **Data Files**

e. Rank - the cost-benefit priority of the item. The rank is used for sorting.

f. Funding Level - each item is assigned to one of five funding levels: minimum (MIN), basic (BAS), enhanced (ENH), over-guidance (O/G), or unfunded (UNF). The funding-level data is used to build a POM submission that is matched to MC fiscal guidance.

g. Consolidated decision package (CDP) number - items are packaged into consolidated decision package sets (CDPSs) by giving them CDP numbers. Each item may have only one CDP number, and each CDP number may be assigned to only one item. The CDP numbers are used to prepare CDPS reports.

h. Program element numbers (PENs) - up to ten PENs may be assigned to each item. The PENs are printed in certain reports.

2.6.2 Other Files. The system maintains other data files that are independent of the item files:

a. Mission area names - used in reports.

b. CDPS names and numbers - used in reports.

c. Cross-mission benefits - a cross-mission benefit is input by the user for one specific (but arbitrary) item in each mission area. The cross-mission benefits are used to calculate weights for transforming all items' mission benefits to overall benefits.

d. Escalation rates - data files of escalation rates for converting constant dollars to current dollars and vice versa are maintained separately for each type of resource. The item-cost files are multiplied by the appropriate escalation rates to produce escalated-cost reports.

e. Names of time periods - a heading for each of the time periods (e.g., FY 81) is input when the model is created. These headings may not be changed. They are used in reports.

f. Names of resources - a name for each type of resource (e.g., PMC) is input when the model is created. These names may not be changed. They are used in reports.

2.7 General Description of Inputs, Processing, Outputs. The POM DBMS supports the MC staff during four major phases of the POM development process. The four phases are (1) the collection of data on program initiatives, including mission benefits and costs; (2) the prioritization of initiatives through the collection and use of cross-mission benefits and the application of cost-benefit analysis; (3) the large-scale packaging of the initiatives into the minimum, basic, enhanced, and over-guidance programs; and (4) the detailed packaging of the basic, enhanced, and over-guidance initiatives into CDPSs. The system's inputs, processing, and outputs to support these steps are described in this section under the headings of data base management, prioritization, and packaging. They are described in terms of the basic functions the user performs with the system during the four phases of POM development. The functions are summarized in Figure 2-02.

2.7.1 Data Base Management.

a. Data base structuring -

(1) Create model - To initialize a data base, the user inputs the number and names of time periods, the types of resources, the names of several mission areas, and the name of at least one item in each mission area. The number and names of time periods and the types of resource may not be revised without completely reinitializing the data base.

(2) Add a mission - After a data base is initialized, the user may input at any time the name(s) of a new mission area(s) and the names of items in the mission area(s).

(3) Delete a mission - After a data base is initialized, the user may designate at any time a mission area(s) to be deleted from the POM DBMS files, along with its items.

b. Data entry - The system prompts the user to input data for a sequence of items.

(1) Enter benefits - The system prompts for the mission benefit of every item in the data base.

(2) Enter costs - The system prompts for all of the costs of the items in a mission area that has been selected by the user.

DATA BASE MANAGEMENT		PRIORITIZATION	PACKAGING
STRUCTURING • CREATE MODEL • ADD A MISSION • DELETE A MISSION **DATA ENTRY** • BENEFITS • COSTS • PENs **DATA DISPLAY** • BENEFITS AND LCC • COSTS AND PACKAGING • WEAK PROGRAMS	**DATA EDITING** • MISSION NAMES • ITEM NAMES • ADD AN ITEM • BENEFITS • COSTS • PENs • ESCALATION RATES	**DEVELOP OVERALL BENEFITS** **SORT ITEMS BY VARIOUS CRITERIA** **PRINT REPORTS** • BENEFIT • CUMULATIVE COST • BENEFIT VS. COST-BENEFIT	**FUNDING LEVEL** • ENTER LEVELS • EDIT LEVELS • SORT BY LEVEL • PRINT REPORTS **CDPS** • ENTER CDPSs • EDIT CDPSs • PRINT REPORT

FIGURE 2-02. **System Functions**

(3) Enter program element numbers - The system prompts for the program element numbers of the items in a mission area that has been selected by the user.

c. Data editing - The user designates individual items (by mission and item number), and the system prompts the user for updated data.

(1) Edit mission names - The user inputs the updated name for a mission area.

(2) Add an item - The user inputs the names of new items for a designated mission area.

(3) Delete an item - The user inputs the mission and item numbers of items to be deleted from the data base.

(4) Edit benefits - The user inputs the updated mission benefit of an item.

(5) Edit costs - The user inputs the updated costs for an item for a designated type of resource. The updated costs for all years are entered simultaneously. The updated costs may be constant or current dollars; the system translates the two by using its escalation rate files.

(6) Edit program element numbers - An item's set of PENs may be changed by (1) addition, (2) deletion, or (3) modifications of each PEN.

(7) Edit escalation rates - The user inputs updated escalation rates for a designated type of resource. The updated rates for all years are entered simultaneously. Note, however, that the rate for the last time period cannot be changed from 1.0. This last time period is assumed to be a multiyear or indefinite period past the POM program years for which no single escalation rate would be appropriate from item to item. Thus if there are six time periods defined by the user, only the first five can have escalation rates. If there are five time periods defined, only the first four can have rates. If only one time period is defined, its costs cannot be escalated.

d. Data display - Various displays and printed reports are useful for managing the data base.

(1) Display benefits and costs - The user designates a mission area, and the system displays the mission benefit, overall benefit, and total life cycle cost for each item in the mission area.

(2) List costs and packaging data - For each item, all items in a designated mission area, or all items in the data base, the system prints (1) all cost data (constant or escalated, as derived), (2) all PENs, (3) the funding levels, and (4) the CDP numbers (if any).

(3) Show weak programs - This report is used to identify items to be deleted from the data base in order to accommodate new items. It reports items that have both a low cost-benefit rank and a low benefit.

2.7.2 Prioritization.

a. Develop overall benefits - The user inputs the cross-mission benefits for a select set of items made up of one item from each mission area. The overall benefits of all the items in a mission area are then calculated by the system in a three-step process:

(1) Calculate the mission area's weight - The weight for a mission area is the quotient of the cross-mission benefit and the mission benefit for the item representing the mission area in the select set.

(2) Apply the weight - The mission benefits of all items in the mission area are multiplied by the weight, resulting in unscaled overall benefits for the items.

(3) Scale the results - After steps (1) and (2) are performed for all mission areas, some one item among all the missions will have the largest unscaled overall benefit, BMAX. (Actually, several items may have this same maximum benefit.) The unscaled overall benefits of all items in all mission areas are multiplied by the quotient 100 ÷ BMAX to obtain the items' overall benefits. Clearly, the largest overall benefit is 100.

b. Sort the items - The user may have the system sort the items in several different ways that are useful for determining a final priority order among the items:

(1) Benefit - The items are ordered from highest to lowest on the criterion of overall benefit.

(2) Cost - The items are ordered from highest to lowest on the criterion of total life cycle cost.

(3) Cost-benefit ratio - The items are ordered from lowest to highest on the criterion of total life cycle cost divided by overall benefit.

(4) Adjusted cost-benefit rank - The user may input the mission and item numbers for several items that are to be put at the head of the cost-benefit ratio sort order. These items are moved to the head of the list; the others remain in cost-benefit ratio order.

(5) Net benefit - The items are ordered from highest to lowest on a criterion formed by subtracting a multiple of total life cycle cost from overall benefit. To operate this sort option, the user must input the identity of an item judged a priori to have a zero net benefit. The system calculates the cost multiplier as the quotient of this item's overall benefit and total life cycle cost.

c. Print reports - Several different types of report may be produced to aid the prioritization of items:

(1) Benefit reports - These reports display the names, item and mission numbers, mission benefits, overall benefits, total life cycle costs, cost-benefit ratios, and adjusted cost-benefit ranks of selected items. To obtain the reports, the user inputs the desired sort order (see b above) and the mission areas whose items are to be extracted from the overall sort order and printed.

(2) Cumulative cost reports - These reports display the names, item and mission numbers, overall benefits, funding level, cost profiles, and cumulative cost profile of selected items. The user inputs the type of resource to be displayed, which

can be either a specific resource or the life cycle cost. The costs are cumulated separately for each time period. As for the benefit reports, the user inputs the desired sort order and mission areas.

(3) Benefit versus cost-benefit reports - These reports display the names, cumulative overall benefits, and cumulative total life cycle costs for the items in a mission area. To obtain the report, the user merely inputs the mission area number. Two separate sets of names, cumulative benefits, and cumulative costs are displayed on the same report. One set shows how cost and benefit cumulate when the items are sorted by benefit; the other set shows how cost and benefit cumulate when the items are sorted by cost-benefit ratio. The two sets are juxtaposed in a way that shows both sets' cumulative costs on the same scale so that one can observe the items that are included for the same cost in each set.

2.7.3 Packaging.

a. Funding levels -

(1) Input - The user may input the funding level (MIN, BAS, ENH, O/G, or UNF) for each item. The user may direct the system to prompt for the funding levels of all items in a specific mission area; or the user may enter and edit the levels for single items by inputting mission area and item numbers. All funding levels are initialized to UNF.

(2) Reports - The user may direct the system to sort the items in order of their funding levels. The system then puts the items that fall within any one level in the order of their mission and item numbers. After sorting, the user may request the benefit and cumulative cost reports described in Section 2.7.2.

b. Consolidated decision package sets -

(1) CDPS input - The user may input the names and 3-digit numbers for up to 30 CDPSs. Several may be input at once; others can be added later.

CDPSs can be deleted. CDPS names can be edited. CDPS numbers cannot be edited directly; rather, the user must first delete the CDPS and then define a new CDPS.

(2) CDP input - The user may enter and edit 4-digit CDP numbers for items. The system validates such input to verify that (a) the first three digits are a defined CDPS number, (b) the 4-digit number is not already assigned to another item, and (c) the item has already been assigned to the BAS, ENH, or O/G level. The default CDP number is 0000; an item may always be assigned this number to indicate that it is not a member of a CDPS.

(3) CDPS report - A report on one or several CDPSs may be requested by the user. For each CDPS, the report displays:

- the funding level of the CDPS
- CDPS name and number
- names, mission and item numbers, and 5-year cost profiles of all items in the CDPS
- cost profile of the CDPS (total of all items' profiles)

The user specifies the type of resource to be displayed (including life cycle cost) and whether or not the costs are to be escalated. This report is automatically formatted by the system so that (1) CDPSs are arranged in numerical order, (2) no CDPS is split across two pages, and (3) a new page and heading mark the start of the BAS, ENH, and O/G sets of CDPSs.

c. Logical checks - The system will not allow a non-zero CDP number to be assigned to a MIN or UNF item. Likewise the system will not allow an item with a non-zero CDP number to be assigned to the MIN or UNF level; its CDP number must be changed to 0000 before such an assignment.

SECTION 3. STAFF FUNCTIONS RELATED TO TECHNICAL OPERATIONS

This section of the Users Manual provides the details necessary to prepare staff inputs to the system. In addition, it explains the characteristics and meaning of the information the program system produces as outputs.

3.1 Initiation Procedures. Instructions for setting up the system and inserting the POM-DBMS diskette are described in the IBM 5110 (or 5120) Computing System Setup Procedure manual. (Note: To protect the diskette, remove it from the diskette drive while switching the computer's power to ON or OFF.)

Instructions for use of the computer keyboard are described in Chapter 1, "Introducing the IBM 5110 (or 5120)" of IBM 5110 (or 5120): APL Introduction Manual.

Each time the 5110 or 5120 is turned on, before operating the POM DBMS, the user must initiate an IBM-supplied "Internal Machine Fix" (IMF): When the power is ON, the diskette inserted and the display, CLEAR WS, appears on the screen, the user must follow the procedure in Figure 3-01. (The user's input is flagged with the command, "TYPE AND PRESS EXECUTE.")

3.2 Staff Input Requirements. POM-DBMS is a hierarchically structured, menu-driven system. It consists of six modules: DESCRIBE, BUILD, EDIT, COSTS, ANALYZE, and PACKAGE, each performing a different function. DESCRIBE simply instructs the user on linking the IMF function; BUILD allows the creation of a new model; EDIT is used to update or make changes to an existing model; COSTS provides the capability for entering and listing POM cost data; ANALYZE performs calculations and prints reports; PACKAGE allows the categorization of POM programs in a form appropriate for the final POM submission. Selection of program modules and data input to them is initiated by the user and requires keyboard entry. The user always depresses the EXECUTE key to indicate to the system that his or her input to the system is ready for processing, whether the input is a command to use a system module, a selection from a menu, or a data entry.

3.2.1 Input Formats. The user selects and loads program modules by typing the APL command keyword,)LOAD, followed by the module name. Selection of a module will result first in a message that tells the user that the module has been

```
      )LINK LOADER          (TYPE AND PRESS EXECUTE)


LOADER FUNCTION

OPTIONS:
     1. LOAD FROM TAPE
     2. LOAD FROM DISKETTE.

ENTER OPTION NUMBER AND PRESS EXECUTE

2                           (TYPE AND PRESS EXECUTE)



ENTER DISKETTE DRIVE NUMBER AND PRESS EXECUTE

1                           (TYPE AND PRESS EXECUTE)

ENTER FILE NAME OR NUMBER AND PRESS EXECUTE

IMF27                       (TYPE AND PRESS EXECUTE)



ENTER OPTION NO.
1. DISPLAY EC'S
2. COPY IMF'S
3. LOAD IMF'S
4. KEY ENTER IMF
5. END OF JOB

3                           (TYPE AND PRESS EXECUTE)



ALL IMF'S ARE CLEARED
LOAD IS FOR THIS SYSTEM
ENTER LOAD OPTION NUMBER
1. LOAD ALL APL IMF'S
2. LOAD IMF'S BY PROB #
3. DISPLAY IMF PROBID'S

1                           (TYPE AND PRESS EXECUTE)



IMF27          LOADED

OPTIONS:
     1. RESTART FUNCTION.
     2. RETURN TO SYSTEM.


ENTER OPTION NUMBER AND PRESS EXECUTE

2                           (TYPE AND PRESS EXECUTE)

CLEAR WS
```

FIGURE 3-01. System Initiation

loaded and then displays the name of the current model stored on the diskette, if one exists. Next, the menu options are displayed.

For example, if the user types)LOAD BUILD[1], the following information will appear:

```
                    )LOAD BUILD

              LOADED 11001 BUILD

              *** BUILD MODULE ***

              THE DISC THAT IS INSERTED CONTAINS MODEL

              PRESS EXECUTE TO CONTINUE
```

The user then presses the EXECUTE key, to receive:

```
                    *** MAIN BUILD OPTIONS ***

              1) CREATE MODEL
              2) DISP BY MISSION
              3) ENTER BENEFITS
              4) ADD A MISSION
              5) DELETE MISSION



                 SELECT THE DESIRED OPTION:
```

[1]In this example, as in all others in the manual where actual computer video displays are illustrated, the user's input has been underlined by the authors to distinguish it from the system-generated portion of the display. Both displays are visible on the video screen.

The required response to "SELECT THE DESIRED OPTION": is to type the number of the desired option (on or to the right of the cursor space). Selection of any particular option from the menu will either cause an operation to be performed or result in the display of another menu. If a secondary menu appears and the user subsequently wishes to return to the previous menu, the user need only strike the EXECUTE key without selecting any specific option. With few exceptions, pressing EXECUTE without inputting other instructions or making selections will cause the computer to display the next higher menu in the hierarchy of menus.

The required inputs for specific classes of data, e.g., costs, are described in the next section. Generally, all input is in free-form format. Moreover, input is tested extensively by the system for validity, and the user is prompted for better data when appropriate.

3.2.2 Composition Rules. The input to POM-DBMS is of two types: numerical input for cost and benefit data and alpha-numerical input for labels of the parameters of the model. The sequencing of input for labels is described in the relevant section of Section 3.2.4, "Sample Inputs."

All labels can be edited except for the resource names and time period titles.

The following sections, a and b, describe the length and symbol restrictions for labels and numerical data.

a. Labels. (Definitions of these labels can be found in Appendix A.) In all cases, the field for inputting labels is marked by closed brackets [ ]. The label can have 1 to n characters where n is the restriction shown in the second column of Table 1-01.

b. Numerical Data. Each item in the POM data base will receive a benefit number and a cost profile that includes the dollar amounts required for each time period from each resource. Other numerical input includes escalation rates for the time periods and cross-scale benefit numbers. Benefits and escalation rates are stored to the same precision as entered, but for displays and reports they are rounded. Cost inputs are rounded before storage; so, in effect, the user may input only integer costs; e.g., 6540.637 is stored as 6541.

Parameter	Minimum Number of Parameter	Maximum Number of Parameter	Label Length	Label Type
Mission Area	1	59	15	Alpha-numeric
Item	1 per mission area	59 per mission 300 total	15	Alpha-numeric
Resource	1	9	15	Alpha-numeric
Time Period	1	6	5	Alpha-numeric
Model	1	1 model per diskette	10	Alpha-numeric
PE Numbers	0	10 per item	6	Alpha-numeric
CDPS Number	0	30	3	Numeric
CDPS Name	0	30	50	Alpha-numeric

Funding Level - One of the five levels: MIN (Minimum), BAS (Basic), ENH (Enhanced), O/G (Over-Guidance), UNF (Unfunded) is assigned to each item.

TABLE 3-01. Composition Rules for Labels

The field for data input is on or to the right of the cursor. Several numbers are often entered simultaneously; they must be separated by one or more blanks; they do not need to be aligned under the time-period labels displayed by the system. Most character-type entry errors will cause an error message and allow correct re-entry. There are some self-correcting conventions such as:

A100 is read as 100

(null) is read as 0

When more than the required number of values is entered, only the required numbers are read. For example, if one value is requested, then the entry

100 10 50 is read as 100.

The ranges for numerical input are shown below. Note that entry of numbers outside of these ranges will cause interruption of the system. Programmer assistance will be required to correct the problem.

Data Type (n)	Restrictions
Benefits	-999.95 < n < 9999.95
Costs	-999999 < n < 9999999
Escalation Rates	0 < n < 3.0 When there are k time periods, only the first k-1 can be escalated.

3.2.3 Input Vocabulary. Appendix A defines and explains the input terms.

3.2.4 Sample Inputs. This section illustrates each class or type of input by describing the creation of a POM-DBMS model through a simple example. The example represents a complete prioritization process from the collection/entry of program information to the programming for POM submission.

3.2.4.1 The Example. To illustrate the general procedure, consider the following example. Assume that the Marine Corps has two mission areas, tactical communications and maritime prepositioning. In preparation for budget submissions, each mission area sponsor has nominated several programs for funding. The sponsors have ranked the programs in order of their perceived benefit, as shown below:

TACTICAL COMMUNICATIONS

Rank	Program	Cost
1.	DCT	$160 M
2.	TDM	$ 3.6M
3.	DWTS	$204 M
4.	TYC-11	$ 4.6M

MARITIME PREPOSITIONING

Rank	Program	Cost
1.	LVT PACKAGE	$105 M
2.	I-HAWK	$ 23.5M
3.	WRECKER	$ 3 M

Assume that the Marine Corps has only limited resources and can expend approximately $300M. Note that the total cost of all seven projects is $503.7M. The Marine Corps must decide which of the seven programs to fund.

The initial step is for each mission area to scale the benefits of their own programs. A relative benefit value (utility) of 100 is assigned to the most beneficial program. The other programs are then scaled accordingly and the assigned values are supported by written rationale.

Assume that the programs are assigned the benefit values shown below:

TACTICAL COMMUNICATIONS

Project	Benefit
DCT	100
TDM	45
DWTS	29
TYC-11	16

MARITIME PREPOSITIONING

Project	Benefit
LVT PACKAGE	100
I-HAWK	80
WRECKER	15

Several implications arise from the scaled values. For example, the tactical communication mission area implies that funding DCT alone will prove more beneficial than funding all of the remaining programs: TDM, DWTS, and TYC-11. (The total benefit of the latter is only 90% that of DCT.) The Maritime Prepositioning Mission Area implies that the LVT package is more than six times more beneficial than the Wrecker.

The Program Evaluation Group, or PEG, is briefed on the Marine Corps-wide benefits of one Tactical Communications Program and one Maritime Prepositioning Program, the choice of programs being random. Sponsor-assigned benefit values are not disclosed to the PEG.

Assume that the PEG has been briefed on DCT and I-HAWK. They are asked to rank order and then scale the two programs. Assume that they judge DCT more beneficial than I-HAWK with the ratio of their benefits 100:40.

At this point, the relative benefits of all of the seven candidate programs have been established in a mathematically and logically consistent relationship. Since DCT was 100 on both scales, no changes are necessary in the tactical communications mission area. Since I-HAWK went from 80 on the mission area scale to 40 on the honest broker scale, all benefits in the maritime prepositioning mission area are scaled proportionally. The implied results are shown:

PROGRAM	BENEFIT
DCT	100
LVT	50
TDM	45
I-HAWK	40
DWTS	29
TYC-11	16
WRECKER	7.5

The costs of the programs can be used to determine the prioritized list, ordered by cost-benefit ratio. This list is:

FUNDING ORDER	PROGRAM	COST(M)	BENEFIT	COST-BENEFIT RATIO
1	TDM	$ 3.6	45	.08
2	TYC-11	$ 4.6	16	.29
3	WRECKER	$ 3	7.5	.4
4	I-HAWK	$ 23.5	40	.59
5	DCT	$160	100	1.60
6	LVT	$105	50	2.1
7	DWTS	$204	29	7.03

A line has been drawn at the approximate funding level constraint of $300M. Given that fiscal constraint, it would not be cost-effective for the Marine Corps to fund DWTS.

If the Marine Corps had adopted a strategy of funding the programs in the order of their benefit only, the final order would have been quite different, as shown:

FUNDING ORDER	PROGRAM	COST	BENEFIT
1	DCT	$160M	100
2	LVT	$105	50
3	TDM	$ 3.6	45
4	I-HAWK	$ 23.5	40
5	DWTS	$204	29
6	TYC-11	$ 4.6	16
7	WRECKER	$ 3	7.5

3.2.4.2 Information Collection: Building the Model. This section describes the method for structuring the new model. The figures represent computer screen displays, and user input is underlined.

Recall that the first step the user must perform when turning on the computer is the initiation procedure described in Section 3.1. By typing)LOAD DESCRIBE and pressing the EXECUTE key, the user receives messages to turn the printer on and off to receive a printed copy of instructions:

```
THESE ARE INSTRUCTIONS FOR LINKING IMF27 BEFORE USING
THE POM-DBMS SOFTWARE.  YOUR RESPONSES ARE INDICATED.
YOU MAY ALIGN FORMS AND TURN THE PRINTER ON.


YOU MAY NOW TURN THE PRINTER OFF.  PRESS EXECUTE TO CONTINUE.
YOU MAY NOW LOAD BUILD, EDIT, ANALYZE, PACKAGE, OR COSTS.
```

The procedure for building a model begins by loading the BUILD module--by typing)LOAD BUILD. This action will cause a primary menu of five options to be displayed, as shown in Section 3.2.1.

a. CREATE MODEL. Selection of Option 1 first generates a warning message to inform the user that if data are now entered, any previous model on the diskette will be destroyed:

```
                *** MAIN BUILD OPTIONS ***

     1) CREATE MODEL
     2) DISP BY MISSION
     3) ENTER BENEFITS
     4) ADD A MISSION
     5) DELETE MISSION



SELECT THE DESIRED OPTION:  1



     THIS OPTION WILL DESTROY THE MODEL THAT YOU ARE CURRENTLY
     WORKING WITH. IF YOU INTEND TO ENTER BENEFITS OR COSTS FOR THIS
     MODEL, YOU SHOULD RETURN TO THE MAIN MENU & PROCEED WITH THE
     APPROPRIATE OPTION.


     ALL COSTS DATA ON THE LOADED DISK WILL BE REPLACED
     DURING THIS OPERATION.
     DO YOU WISH TO RETURN TO THE MAIN MENU? NO
```

A NO response allows the user to structure a new model by naming: mission areas, items within mission areas, cost types, and funding time periods. The mission areas and items may be changed or added to later; however, the resource labels and time periods cannot be edited after input here.

By the use of prompts, the system will request that the user type in the labels of the various parameters. New names for each parameter type will be requested until the user presses EXECUTE without entering data. The example for CREATE MODEL begins with entry of mission area names:

```
ENTER MISSION AREA NAMES:
#1:  [TACTICAL COMMO ]
#2:  [MARITIME PREPOS]
#3:  [               ]
```

After returning the carriage with no data entry, the system will ask for resource labels used in Life Cycle calculations. For simplicity, this example will use only Procurement (PMC), Operations and Maintenance (O&MMC), and Other Costs (OTHER). After a carriage return with no data entry, the system will request resource labels not used in Life Cycle Costs. These costs are those not counted against the USMC total obligational authority (TOA) but are used to track important data to be used for side analyses. For this example, none will be entered. Next, headings for the time periods are input. Entries for the cost information is shown below:

```
RESOURCE LABELS

NOTE: YOU WILL NOW BE PROMPTED TO IDENTIFY THE DIFFERENT
TYPES OF RESOURCE THAT COUNT AGAINST YOUR BUDGET CONSTRAINT
YOU MAY NOT REVISE THIS LIST AT ANY TIME, SO BE CAREFUL.

ENTER RESOURCE LABELS TO BE USED IN LIFE CYCLE COST CALCULATIONS

#1:  [PMC             ]
#2:  [O&MMC           ]
#3:  [OTHER           ]
#4:  [                ]
```

(continued on following page)

```
NOTE: YOU WILL NOW BE PROMPTED TO IDENTIFY THE TYPES OF
RESOURCE THAT DO NOT COUNT AGAINST YOUR BUDGET, BUT
WHICH YOU WISH TO KEEP TRACK OF NONETHELESS. YOU MAY
NOT REVISE THIS LIST AT ANY TIME, SO BE CAREFUL.

ENTER OTHER RESOURCE LABELS NOT TO BE USED IN LIFE CYCLE COSTS

#4:  [                ]
ENTER HEADINGS FOR TIME PERIODS.
#1:  [FY83 ]
#2:  [FY84 ]
#3:  [FY85 ]
#4:  [FY86 ]
#5:  [FY87 ]
#6:  [OUTYR]
#7:  [      ]
```

(Note from Table 1 that escalation rates cannot be entered for the OUTYR costs.)

The system then asks for the names of the programs (items) within each mission area.

```
ENTER ITEMS WITHIN EACH MISSION AREA.

EACH MISSION AREA MUST HAVE AT LEAST 1, BUT NOT MORE
THAN 59 ITEMS.


PRESS EXECUTE TO CONTINUE
NAME THE ITEMS FOR MISSION AREA: TACTICAL COMMU
#1:  [DCT              ]
#2:  [TDM              ]
#3:  [DWTS             ]
#4:  [TYC-11           ]
#5:  [                 ]
NAME THE ITEMS FOR MISSION AREA: MARITIME PREPOS
#1:  [LVT PACKAGE      ]
#2:  [I-HAWK           ]
#3:  [WRECKER          ]
#4:  [                 ]
```

Each item is assigned a two-number code which indicates the mission area number and the item number. For example, the code 2 3 will be assigned to the third-named item in the second-named mission area. When the user has entered all item names, the EXECUTE key is pressed. The system stores the input, and after an interval of about three minutes during which it creates data files, it asks for a model name.

```
*** BUILD MODULE ***

THE DISC THAT IS INSERTED CONTAINS MODEL POM 83-87

PRESS EXECUTE TO CONTINUE
EDIT THE FILE NAME:
[POM 83-87 ]
```

It informs the user that all costs and benefits have been set to zero and package labels initialized.

```
ALL COSTS, WEIGHTS AND BENEFITS HAVE BEEN SET TO ZERO.
ALL CDPS'S AND PE NUMBERS HAVE BEEN SET TO BLANKS.
ALL FUNDING LEVELS HAVE BEEN SET TO 'UNF'.

PRESS EXECUTE TO CONTINUE
```

At that time the model structure is complete and the screen returns to the main BUILD menu.

```
          *** MAIN BUILD OPTIONS ***

  1) CREATE MODEL
  2) DISP BY MISSION
  3) ENTER BENEFITS
  4) ADD A MISSION
  5) DELETE MISSION
```

b. DISPLAY BY MISSION AREA. Option 2 of the main BUILD menu allows the user to display a menu of the mission area names in the existing model. Selection of mission area is requested:

```
WHICH MISSION AREA WOULD YOU LIKE TO SEE?

1) TACTICAL COMMO
2) MARITIME PREPOS

SELECT THE DESIRED OPTION: 1
```

The screen displays the items in the mission area, and the items' mission area benefits and life cycle costs. Also displayed is the relative weight of the mission area compared to other mission areas (if calculated), which is the fraction of overall benefit associated with the mission area's items.

```
MISSION AREA:  TACTICAL COMMO    WT:    1.00
          ITEM                MISSION    COST
                                BNF
  1   1)DCT                     .000        0
  1   2)TDM                     .000        0
  1   3)DWTS                    .000        0
  1   4)TYC-11                  .000        0

PRESS EXECUTE TO CONTINUE
```

Only ten items can be displayed at once, so the user must respond to a request to see additional items, if there are more.

c. ENTER BENEFITS. Selection of this option allows the user to input the mission-area benefits for all items sequentially. (Across-mission-area benefits are entered in the ANALYZE module.) The user will be prompted by the system for all items' mission benefits; if benefits already exist,

selection of this option will produce a warning that all previous benefits will be erased. Benefits can be entered separately by item in the EDIT module.

```
            *** MAIN BUILD OPTIONS ***

     1) CREATE MODEL
     2) DISP BY MISSION
     3) ENTER BENEFITS
     4) ADD A MISSION
     5) DELETE MISSION




    SELECT THE DESIRED OPTION:  3
    BENEFITS ALREADY EXIST.  DO YOU WISH TO RE-ENTER THEM?
```

When the user chooses to enter (or re-enter) benefits, the items appear one at a time and the user must enter a benefit number and press EXECUTE.

```
    ENTER THE RELATIVE BENEFIT WITHIN EACH MISSION AREA:
     1   1)DCT                100__
     1   2)TDM                45___
     1   3)DWTS               29___
     1   4)TYC-11             16___
     2   1)LVT PACKAGE        100__
     2   2)I-HAWK             80___
     2   3)WRECKER            15___
```

Entry errors will produce an error message.

```
    ENTER THE RELATIVE BENEFIT WITHIN EACH MISSION AREA:
     1   1)DCT                100..0

    *** THE NUMBER(S) YOU HAVE ENTERED ARE INCORRECT.
    *** PLEASE RE-ENTER.
     1   1)DCT                _____
```

The system interprets a null response (i.e., just pressing EXECUTE without entering any number) as a zero benefit, not as an error.

Upon completion of benefit entry, the data are saved and the model name can be edited[2]:

```
*** BUILD MODULE ***

THE DISC THAT IS INSERTED CONTAINS MODEL POM 83-87

PRESS EXECUTE TO CONTINUE
EDIT THE FILE NAME:
[POM 83-87 ]
```

d. ADD/DELETE MISSION AREAS. Mission areas can be added or deleted by selection of Options 4 or 5 respectively. The system will again prompt for labels after reminding the user of the limit of 59 items per mission area.

```
*** MAIN BUILD OPTIONS ***

1) CREATE MODEL
2) DISP BY MISSION
3) ENTER BENEFITS
4) ADD A MISSION
5) DELETE MISSION

SELECT THE DESIRED OPTION:  4
ENTER THE NEW MISSION AREA NAME:
  [AMMUNITION      ]
ENTER ITEM NAMES (AT LEAST 1,BUT NOT MORE THAN 59) FOR AMMUNITION
#1:  [COPPERHEAD      ]
#2:  [                ]
ENTER THE NEW MISSION AREA NAME:
  [                ]

PRESS EXECUTE TO CONTINUE
```

[2]The model (or file) name is updated after input for every class of data. The date of the model's last revision can be used as part of the model name.

To delete a mission area, the user selects the number of the one to be removed, and after EXECUTE the system requests validation of the name.

```
                *** MAIN BUILD OPTIONS ***

    1) CREATE MODEL
    2) DISP BY MISSION
    3) ENTER BENEFITS
    4) ADD A MISSION
    5) DELETE MISSION




  SELECT THE DESIRED OPTION:  5
            WHICH MISSION AREA DO YOU WANT TO DELETE ?

    1) TACTICAL COMMO
    2) MARITIME PREPOS
    3) AMMUNITION
```

```
  SELECT THE DESIRED OPTION:  3
  MISSION AREA AMMUNITION IS TO BE DELETED? YES
```

To terminate the options, press EXECUTE with no data entry. The system will provide a reminder that cross-mission area benefits should be re-developed if a mission area is deleted:

```
    YOU MUST REDEVELOP CROSS MISSION AREA BENEFITS.
```

To terminate the BUILD module, first a carriage return is made with no option selected from the primary menu. If the user decides to continue with BUILD, the word RUN is entered. If the user wants to proceed to another module, he enters)LOAD module name. Termination is shown as follows:

```
                    *** MAIN BUILD OPTIONS ***

                1) CREATE MODEL
                2) DISP BY MISSION
                3) ENTER BENEFITS
                4) ADD A MISSION
                5) DELETE MISSION




              SELECT THE DESIRED OPTION: _____
              TO CONTINUE TYPE THE WORD RUN.
```

3.2.4.3 Information Collection: Entering Costs. When a model is built, all costs are automatically set to zero. To input all cost data, mission area by mission area, the user loads the COSTS module by typing)LOAD COSTS, then selecting Option 1, ENTER COSTS:

```
          )LOAD COSTS
    LOADED 11010 COSTS
    *** ENTER/LIST COSTS MODULE ***

    THE DISC THAT IS INSERTED CONTAINS MODEL POM 83-87

    PRESS EXECUTE TO PROCEED.


                COSTS OPERATIONS:

     1) ENTER COSTS
     2) LIST COSTS

    ENTER THE NUMBER OF THE DESIRED OPTION: 1
```

a. ENTER COSTS. The system asks if costs are to be entered in constant or escalated dollars.

```
COST FIGURES TO BE ENTERED IN WHICH DOLLAR TYPE?

1) CONSTANT
2) ESCALATED

ENTER THE NUMBER OF THE DESIRED OPTION: 1
```

If entry is to be in escalated dollars, the rates must be specified before entry, since the cost values are de-escalated immediately after entry according to the current rates, and are stored in constant dollars. Therefore, the system displays the rates for verification and editing prior to accepting escalated cost input. Since the editing of rates can be done identically in the EDIT module, this operation is discussed below rather than here.

A menu of mission areas appears, and the user selects one area for which to enter costs.

```
COSTS FOR WHICH MISSION AREA?

1) TACTICAL COMMO
2) MARITIME PREPOS

SELECT THE DESIRED OPTION(S):  1
```

The POM system will then prompt for each type of cost, year by year for each item. (Caution: Recall that only the integer portion of cost inputs will be stored in the data base. Decimals may be entered but they will not be stored by the system, i.e., 6540.637 will be stored as 6541.) When all costs are entered for that mission area, the screen returns to the mission area menu again. The process is shown below:

TACTICAL COMMO 1 1)DCT						
	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	6540	6540	13639	20430	13639	12268
O&MMC	0	215	433	4977	4476	78297
OTHER	0	0	0	0	0	0
TACTICAL COMMO 1 2)TDM						
	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	1653	0	0	0	0	0
O&MMC	0	0	162	162	164	1050
OTHER	0	0	43	43	44	280
TACTICAL COMMO 1 3)DWTS						
	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	16786	16786	16786	16786	16786	96468
O&MMC	0	430	866	1299	1747	8000
OTHER	0	0	0	0	0	400
TACTICAL COMMO 1 4)TYC-11						
	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	0	0	2000	940	1070	0
O&MMC	0	0	0	0	65	420
OTHER	0	0	0	0	0	105

b. LIST COSTS. This option will be described in the Sample Output section.

3.2.4.4 Information Collection: Editing Input. The EDIT module allows the user to make changes to a model that has been created and stored on the diskette. In addition, this module permits display of input, as in the BUILD module, and permits selective display of "weak programs," i.e., the set of programs below a user-specified rank.

a. EDIT MODEL. Selection of the first EDIT option results in a display of the secondary menu shown:

```
      )LOAD EDIT
LOADED 11002 EDIT
*** EDIT MODULE ***

THE DISC THAT IS INSERTED CONTAINS MODEL POM 83-87

PRESS EXECUTE TO CONTINUE
          MAIN EDIT OPTIONS

 1) EDIT MODEL
 2) DISPLAY
 3) SHOW WEAK PROGRAMS

ENTER THE NUMBER OF THE DESIRED OPTION: 1


               EDIT OPTIONS

 1) EDIT BENEFITS
 2) EDIT COSTS
 3) EDIT ITEM NAMES
 4) EDIT MISSION NAMES
 5) ADD AN ITEM
 6) DELETE AN ITEM
 7) EDIT ESCALATION RATE
```

EDIT BENEFITS will allow the user to change mission area benefits, one item at a time. The system will ask for the two-digit code of the item to be edited and then will provide a field for input. As many changes as desired can be made consecutively, in any order:

```
               EDIT OPTIONS

 1) EDIT BENEFITS
 2) EDIT COSTS
 3) EDIT ITEM NAMES
 4) EDIT MISSION NAMES
 5) ADD AN ITEM
 6) DELETE AN ITEM
 7) EDIT ESCALATION RATE

ENTER THE NUMBER OF THE DESIRED OPTION: 1
```

(Continued on the following page)

```
****** EDIT MODE *******
EDIT MISSION AREA BENEFITS:

ENTER MISSION AREA AND ITEM: 1 3
 1  3)DWTS
MISSION AREA BENEFIT:        29.0




ENTER MISSION AREA AND ITEM: ____
```

EDIT COSTS provides a means for updating cost data. Again, dollars can be entered in one of two types, constant or escalated. The system will ask which cost is to be edited, so input can be entered item by item within a resource category.

```
          EDIT OPTIONS

1) EDIT BENEFITS
2) EDIT COSTS
3) EDIT ITEM NAMES
4) EDIT MISSION NAMES
5) ADD AN ITEM
6) DELETE AN ITEM
7) EDIT ESCALATION RATE

ENTER THE NUMBER OF THE DESIRED OPTION: 2
```

```
          EDIT WHICH COST?

1) PMC
2) O&MMC
3) OTHER

ENTER THE NUMBER OF THE DESIRED OPTION: 1
```

(Continued on the following page)

EDIT COSTS IN WHICH DOLLAR TYPE?

1) CONSTANT
2) ESCALATED

ENTER THE NUMBER OF THE DESIRED OPTION: 1

PMC

	FY83	FY84	FY85	FY86	FY87	OUTYR
ENTER MISSION AREA AND ITEM: 1 1						
1 1)DCT	6540	6540	13639	20430	13639	12268

ENTER MISSION AREA AND ITEM: ___

Caution: Only the integer portion of cost inputs will be stored; decimals will not be stored; 6540.637 will be stored as 6541.

Upon completion of cost input for one resource type, depression of EXECUTE will return the screen display to the EDIT WHICH COST? menu:

EDIT WHICH COST?

1) PMC
2) O&MMC
3) OTHER

ENTER THE NUMBER OF THE DESIRED OPTION: ____

Another resource can be selected for data input, or EXECUTE can be depressed to return to the EDIT OPTIONS menu.

EDIT ITEM NAMES permits the user to change the name of an item. The system will request the mission area and item number of the item to be edited. When those are specified, the system will display the current name and allow the user to edit the name. After this is done and the carriage returned, the system will request the mission area and item numbers of the next name requiring editing:

```
                EDIT OPTIONS

    1) EDIT BENEFITS
    2) EDIT COSTS
    3) EDIT ITEM NAMES
    4) EDIT MISSION NAMES
    5) ADD AN ITEM
    6) DELETE AN ITEM
    7) EDIT ESCALATION RATE

   ENTER THE NUMBER OF THE DESIRED OPTION: 3
   ****** EDIT LABEL MODE ******
   ENTER MISSION AREA AND ITEM: 1 2
   TDM
   ****** EDIT LABEL MODE ******
   ENTER MISSION AREA AND ITEM: __
```

If none are supplied and the carriage is returned, the system returns to the previous menu. The mission area names can be edited with the EDIT MISSION NAMES option by indicating the number of the mission area to be modified. The old name is displayed and can be edited:

```
                EDIT OPTIONS

    1) EDIT BENEFITS
    2) EDIT COSTS
    3) EDIT ITEM NAMES
    4) EDIT MISSION NAMES
    5) ADD AN ITEM
    6) DELETE AN ITEM
    7) EDIT ESCALATION RATE

   ENTER THE NUMBER OF THE DESIRED OPTION: 4
            WHICH MISSION AREA LABEL?

    1) TACTICAL COMMO
    2) MARITIME PREPOS

   ENTER THE NUMBER OF THE DESIRED OPTION: 1
   TACTICAL COMMO
```

If no mission area is selected, the system will return to the previous menu.

The ADD A NEW ITEM option is selected when the user wishes to include in the analysis an item which has not been included originally. When this option is selected, the system asks the user for the mission area that will contain the new item.

```
                EDIT OPTIONS

      1) EDIT BENEFITS
      2) EDIT COSTS
      3) EDIT ITEM NAMES
      4) EDIT MISSION NAMES
      5) ADD AN ITEM
      6) DELETE AN ITEM
      7) EDIT ESCALATION RATE

    ENTER THE NUMBER OF THE DESIRED OPTION: 5


            ADD ITEM TO WHICH MISSION AREA

      1) TACTICAL COMMO
      2) MARITIME PREPOS

    ENTER THE NUMBER OF THE DESIRED OPTION: 1
```

The system will then provide the item code of the new item and a space in which to type the item's name.

```
    YOU MAY ADD 55 MORE ITEMS TO THIS MISSION AREA

    ENTER DESCRIPTION WITHIN THE BRACKETS:
    # 1  5):  [JTIDS                ]
```

Once this has been entered, the system will request the name of the next item.

```
    YOU MAY ADD 54 MORE ITEMS TO THIS MISSION AREA

    ENTER DESCRIPTION WITHIN THE BRACKETS:
    # 1  6):  [                    ]
```

When the user returns the carriage without supplying a name, the system will return to the previous menu and request another mission area.

ADD ITEM TO WHICH MISSION AREA

1) TACTICAL COMMO
2) MARITIME PREPOS

ENTER THE NUMBER OF THE DESIRED OPTION: _____

If no data are entered, the system will return to the higher level menu. Since the system automatically sets the cost and benefit values for new items to zero, the user must use EDIT COSTS and EDIT BENEFITS to supply those numbers.

DELETE AN ITEM is the option selected if the user wishes to eliminate an item from the analysis. When this option is selected, the system will request the mission area and item number of the item to be deleted. It will then request confirmation that the specified item is the correct one to be deleted. Only upon confirmation will the system actually delete the item.

EDIT OPTIONS

1) EDIT BENEFITS
2) EDIT COSTS
3) EDIT ITEM NAMES
4) EDIT MISSION NAMES
5) ADD AN ITEM
6) DELETE AN ITEM
7) EDIT ESCALATION RATE

ENTER THE NUMBER OF THE DESIRED OPTION: 6

****** DELETE MODE ******

ENTER MISSION AREA AND ITEM: 1 5
DO YOU WISH TO DELETE: JTIDS? Y

The computer will then ask for another name and number for an item to be deleted. If none is entered prior to a carriage return, the user will be returned to the previous menu.

The seventh option should be selected to enter new escalation rates or update current ones. Recall that rates must be entered prior to entry of escalated costs data in ENTER COSTS or EDIT COSTS. For a given type of cost, the system calculates the escalated costs for all items by multiplying the constant dollar costs for the items for a given

time period by the rate for that time period and that type of cost. The last time period is assumed to be an indefinite length for which no rate would be appropriate. The system will ask for the type of cost, then prompt the user for new rates for that cost. The current rates are displayed under columns headed by the time periods as shown below:

```
                    EDIT OPTIONS

   1) EDIT BENEFITS
   2) EDIT COSTS
   3) EDIT ITEM NAMES
   4) EDIT MISSION NAMES
   5) ADD AN ITEM
   6) DELETE AN ITEM
   7) EDIT ESCALATION RATE

  ENTER THE NUMBER OF THE DESIRED OPTION: 7


                EDIT ESCALATION RATE FOR WHICH COST?

   1) PMC
   2) O&MMC
   3) OTHER

  ENTER THE NUMBER OF THE DESIRED OPTION: 1
                        FY83     FY84     FY85     FY86     FY87

  PMC                   1.1      1.1      1.1      1.1      1.1
```

Note that only the first k-1 time periods can be assigned a rate when there are k periods. Pressing EXECUTE will return the screen to the previous menu, and rates for the other costs can be entered by selection of the appropriate option. The default rate is 1.0.

When no EDIT option is chosen and EXECUTE is pressed, the system will automatically save the edited input, allow the user to edit the file name, and then return to the main EDIT menu.

b. DISPLAY. The system will display information, primarily for the purpose of validating input, by mission

area including items' numbers, names, mission area benefits, overall benefits, life cycle costs, cost-benefit ratios, and ranks:

```
          MAIN EDIT OPTIONS

 1) EDIT MODEL
 2) DISPLAY
 3) SHOW WEAK PROGRAMS

ENTER THE NUMBER OF THE DESIRED OPTION: 2


          WHICH MISSION AREA WOULD YOU LIKE TO SEE?

 1) TACTICAL COMMO
 2) MARITIME PREPOS

ENTER THE NUMBER OF THE DESIRED OPTION: 1

MISSION AREA:     TACTICAL COMMO    WT:   66.09
        ITEM              MISSION    OV.      COST      C/B   RANK
                            BNF      BNF
 1   1)DCT              100.000  100.000   161454   1614.5    5
 1   2)TDM               45.000   45.000     3601     80.0    1
 1   3)DWTS              29.000   29.000   193140   6660.0    7
 1   4)TYC-11            16.000   16.000     4600    287.5    2

PRESS EXECUTE TO CONTINUE
```

If there are more than ten items in the mission area, the user has the option of seeing the rest, ten at a time. If no mission area is selected before the carriage return, the system returns to the main EDIT menu.

c. SHOW WEAK PROGRAMS. With this option the user can examine "weak" programs below selected rank. The user simply inputs an integer to produce the display which will be described in the Sample Output section.

3.2.4.5 Information Collection: Program Element Numbers. The system provides the capability to assign Program Element (PE) numbers to each item that correspond to the elements of the Defense Department's Five Year Defense Program. The items' PE numbers can be input, displayed, and listed in output. The user can assign up to ten PE numbers to each

item, and can add, delete, or revise the numbers. This capability appears in the PACKAGE module. Selection of the INITIALIZE option, and the PE NUMBERS option in the subsequent menu results in a system request for PE number input by mission area.

```
                *** MAIN PACKAGE OPTIONS ***

        1) EDIT MODEL
        2) INITIALIZE MODEL
        3) PRINT CDPS
        4) DISPLAY CDPS

      ENTER THE NUMBER OF THE DESIRED OPTION: 2

                WHAT INFORMATION DO YOU WANT TO ENTER?

        1) CDPS
        2) FUND LEVEL
        3) PE NOS.

      ENTER THE NUMBER OF THE DESIRED OPTION: 3

                WHICH MISSION AREA DO YOU WANT?

        1) TACTICAL COMMO
        2) MARITIME PREPOS




      SELECT THE DESIRED OPTION(S):  1
```

The example shows the assignment of one to ten PE numbers to each item, after prompting by the system.

```
 1  1 DCT
1[25812M]
2[13200M]
3[43448N]
4[      ]
 1  2 TDM
1[22298N]
2[10043M]
3[19870N]
4[00892N]
5[      ]
 1  3 DWTS
1[11090M]
2[      ]
 1  4 TYC-11
1[33892M]
2[33871M]
3[54981N]
4[45628N]
5[11975N]
6[01904N]
7[      ]
```

Selection of a mission area under PE initialization options will erase all previous PE numbers for that mission area and allow all new entries.

The PE numbers can be edited item-by-item by selection of the EDIT MODEL option in the main PACKAGE menu.

```
*** MAIN PACKAGE OPTIONS ***

 1) EDIT MODEL
 2) INITIALIZE MODEL
 3) PRINT CDPS
 4) DISPLAY CDPS

ENTER THE NUMBER OF THE DESIRED OPTION: 1


          EDIT OPTIONS

 1) EDIT PE NOS.
 2) EDIT CDPS
 3) EDIT FUND LVL

ENTER THE NUMBER OF THE DESIRED OPTION: 1
```

Option 1 allows addition of new PE numbers to already existing ones. The system requests an item number, then provides a space enclosed in brackets for entry of another PE number. Note then, Item 1-1, DCT, is given its fourth PE number since it already has been assigned three others.

```
                WHAT CHANGES WOULD YOU LIKE TO MAKE?

        1) ADD PE NOS.
        2) DROP PE NOS.
        3) EDIT PE NOS.

      ENTER THE NUMBER OF THE DESIRED OPTION: 1
      ENTER MISSION AREA AND ITEM: 1 1
       1  1 DCT
      4[22298N]
      5[       ]
      ENTER MISSION AREA AND ITEM: 2 2
       2  2 I-HAWK
      8[77620M]
      9[       ]
      ENTER MISSION AREA AND ITEM: ____
```

The following is a display of the use of Option 2 to delete PE numbers. The item code is requested and that item's PE numbers are all displayed for selection.

```
        1) ADD PE NOS.
        2) DROP PE NOS.
        3) EDIT PE NOS.

      ENTER THE NUMBER OF THE DESIRED OPTION: 2
      ENTER MISSION AREA AND ITEM: 2 2
                WHICH PE NO. DO YOU WANT TO DROP?

        1) 33996M
        2) 44810M
        3) 15629M
        4) 69404M
        5) 23584M
        6) 01110N
        7) 25192N
        8) 77620M

      ENTER THE NUMBER OF THE DESIRED OPTION: 5
      YOU WISH TO DELETE 23584M? YES
```

Individual PE numbers for an item can be edited, e.g., their labels can be changed, by choosing Option 3:

```
                WHAT CHANGES WOULD YOU LIKE TO MAKE?

  1) ADD PE NOS.
  2) DROP PE NOS.
  3) EDIT PE NOS.

ENTER THE NUMBER OF THE DESIRED OPTION: 3
ENTER MISSION AREA AND ITEM: 1 4
            WHICH PE DO YOU WANT TO EDIT?

  1) 33892M
  2) 33871M
  3) 54981N
  4) 45628N
  5) 11975M
  6) 01904N

ENTER THE NUMBER OF THE DESIRED OPTION: 6
6[01904M]
```

3.2.4.6. Input for Prioritization.)LOAD ANALYZE will produce the menu:

```
      )LOAD ANALYZE
LOADED 11003 ANALYZE
*** ANALYZE MODULE ***

THE DISC THAT IS INSERTED CONTAINS MODEL POM 83-87

PRESS EXECUTE TO PROCEED.

            MAIN ANALYZE OPTIONS

  1) PRINT REPORTS
  2) SORT
  3) CROSS-BENEFITS
  4) OVERRIDE RANK

ENTER THE NUMBER OF THE DESIRED OPTION: 3
```

Option 3 is chosen to enter the cross-scale benefit numbers for use in merging the mission area benefit scales. The system instructs the user to select one item from each mission area and assign it a relative importance weight. The user first enters each item's code and presses EXECUTE. The system will show the item's name and provide a field for input of the weight. Then the user enters the benefit number and presses EXECUTE. A prompt for the next item appears, and input continues until all mission areas have an item with an assigned cross-benefit:

```
**CROSS MISSION AREA ANALYSIS**

SELECT AN ITEM FROM EACH MISSION AREA AND ASSIGN IT A WEIGHT.

ENTER MISSION AREA AND ITEM: 1 1
 1  1)DCT
WEIGHT: 100
ENTER MISSION AREA AND ITEM: 2 2
 2  2)I-HAWK
WEIGHT: 40

ENTER MISSION AREA AND ITEM: ____
```

Only one item per mission area should be included; if more than one is entered, the last item's input is used for the cross-scale. If the user does not specify an item from every mission area, the system reponds with a message such as:

```
YOU HAVE ONLY ENTERED WEIGHTS FOR MISSION AREAS:
TACTICAL COMMO

PLEASE ENTER THE OTHER WEIGHTS!
```

Selecting the OVERRIDE RANK option allows the user to specify the cost-benefit-ratio rank of programs regardless of any calculated results. This option is used to identify items for funding that should not be competitive. They might include programs such as legal compliance items, "must-buy" items, and continuity items. If the "RANK" option is selected in the SORT menu (described in Section 3.3.2.2.1), the items input here will be put at the top of the list of items, and all other items will be in cost-benefit-ratio order.

The system prompts the user for item codes and asks for verification by displaying the item(s) names:

```
                MAIN ANALYZE OPTIONS

    1) PRINT REPORTS
    2) SORT
    3) CROSS-BENEFITS
    4) OVERRIDE RANK

  ENTER THE NUMBER OF THE DESIRED OPTION: 4
  ENTER THE ITEMS WHICH MUST BE BOUGHT IN THE ORDER REQUIRED.
  ENTER MISSION AREA AND ITEM: 2 2
  YOU WISH TO BUY: I-HAWK? YES
  ENTER MISSION AREA AND ITEM: 1 3
  YOU WISH TO BUY: DWTS? YES
  ENTER MISSION AREA AND ITEM: ___
```

The order in which the user enters the items is the order in which they will be ranked, beginning with a rank of 1. Every time this option is selected, previous rankings are erased and the ordering starts anew. Pressing EXECUTE without any entry assures no override items in the ranking. The above would give I-HAWK a rank of 1 and DWTS a rank of 2.

At this point, all the necessary information has been input to the system for the prioritization process.

3.2.4.7 Programming/Packaging Inputs. The system has a capability to assist the user in preparing the POM submission by categorization of data by funding levels and CDPSs.

a. FUNDING LEVELS. The user can assign each item to one of five funding levels: MIN, BAS, ENH, O/G, or UNF. The user cannot assign MIN or UNF to an item that has a CDPS package number (see Section 3.2.4.7.b). The default setting is UNF, thus funding levels must be specified before CDPS package numbers. The option INITIALIZE MODEL in the PACKAGE module allows the user to enter FUNDING LEVELS.

*** MAIN PACKAGE OPTIONS ***

1) EDIT MODEL
2) INITIALIZE MODEL
3) PRINT CDPS
4) DISPLAY CDPS

ENTER THE NUMBER OF THE DESIRED OPTION: 2

WHAT INFORMATION DO YOU WANT TO ENTER?

1) CDPS
2) FUND LEVEL
3) PE NOS.

ENTER THE NUMBER OF THE DESIRED OPTION: 2

Selection of this menu item results in a request for a mission area.

WHICH MISSION AREA?

1) TACTICAL COMMO
2) MARITIME PREPOS

SELECT THE DESIRED OPTION(S): 1

The user should choose a mission area number and press EXECUTE. (Again, pressing EXECUTE without input moves the screen back to the previous menu.) The system will then display the chosen mission area's items one by one and provide a space to enter the appropriate funding level. The user enters three characters and presses EXECUTE to receive the prompt for the next item. Notice that an error in input LVT PACKAGE [BAR], causes a message requesting a correct funding level.

```
MISSION AREA: TACTICAL COMMO
 1   1 DCT              [BAS]
 1   2 TDM              [MIN]
 1   3 DWTS             [UNF]
 1   4 TYC-11           [ENH]
          WHICH MISSION AREA?

 1) TACTICAL COMMO
 2) MARITIME PREPOS
```

```
SELECT THE DESIRED OPTION(S):  2
MISSION AREA: MARITIME PREPOS
 2   1 LVT PACKAGE     [BAR]
BAR IS NOT A VALID FUNDING LEVEL.
VALID FUNDING LEVELS: MIN,BAS,ENH,O/G,UNF.
PLEASE TRY AGAIN.
 2   1 LVT PACKAGE     [BAS]
 2   2 I-HAWK          [MIN]
 2   3 WRECKER         [MIN]
```

The funding levels can be edited in the EDIT MODEL of the PACKAGE main menu:

```
          *** MAIN PACKAGE OPTIONS ***

 1) EDIT MODEL
 2) INITIALIZE MODEL
 3) PRINT CDPS
 4) DISPLAY CDPS

ENTER THE NUMBER OF THE DESIRED OPTION: 1
          EDIT OPTIONS

 1) EDIT PE NOS.
 2) EDIT CDPS
 3) EDIT FUND LVL

ENTER THE NUMBER OF THE DESIRED OPTION: 3
```

The system requests an item code; then after the user inputs the code and presses EXECUTE, it provides the item's name and a space for input:

```
ENTER MISSION AREA AND ITEM: 2 2
 2  2 I-HAWK          [ENH]
ENTER MISSION AREA AND ITEM: 2 3
 2  3 WRECKER         [BAS]
ENTER MISSION AREA AND ITEM: __
```

b. Consolidated Decision Package Sets (CDPSs). Another system capability is an aid for the creation of the CDPS report sent to the Secretary of the Navy. This section describes the necessary inputs, and Section 3.3.2.3 describes the format of the outputs.

The user can assign four-digit CDPS package numbers to items, with the default number set at 0000. Items in the minimum (MIN) or unfunded (UNF) levels cannot receive a CDPS number, but will be assigned the default, 0000. The first three digits of the package number must be a defined CDPS number. CDPS numbers are defined by input in the INITIALIZE section of the PACKAGE module:

```
*** MAIN PACKAGE OPTIONS ***

1) EDIT MODEL
2) INITIALIZE MODEL
3) PRINT CDPS
4) DISPLAY CDPS

ENTER THE NUMBER OF THE DESIRED OPTION: 2
          WHAT INFORMATION DO YOU WANT TO ENTER?

1) CDPS
2) FUND LEVEL
3) PE NOS.

ENTER THE NUMBER OF THE DESIRED OPTION: 1
```

Selection of Option 1 causes the request for a three-digit number, which the user inputs and then presses EXECUTE. The system next asks for the CDPS name (up to 50 characters). After the CDPS is defined, the user inputs the items in the CDPS while being prompted by consecutive four-digit package numbers, the first three being the CDPS numbers:

```
INPUT CDPS NUMBER [100]
INPUT CDPS NAME [CONSOLIDATED PACKAGE ONE          ]
1000:
ENTER MISSION AREA AND ITEM: 1 1
1001:
ENTER MISSION AREA AND ITEM: 2 1
1002:
ENTER MISSION AREA AND ITEM:
```

When all the items for a CDPS are input, the user presses EXECUTE and the system requests the next CDPS number.

If the user assigns a CDPS package number to a MIN or UNF item, an error message appears:

```
INPUT CDPS NUMBER [200]
INPUT CDPS NAME [CONSOLIDATED PACKAGE TWO                ]
2000:
ENTER MISSION AREA AND ITEM: 1 4
2001:
ENTER MISSION AREA AND ITEM: 2 3
2002:
ENTER MISSION AREA AND ITEM: 1 2
THIS ITEM HAS EITHER A MIN OR UNF FUNDING LEVEL AND,
THEREFORE, CANNOT BE GIVEN A CDPS PACKAGE NUMBER.
PLEASE RE-ENTER.
2002:
```

The CDPS INITIALIZE option can be exercised only if no CDPS numbers currently exist. Otherwise, the user receives a message advising the use of EDIT MODEL to define new CDPSs:

```
*** MAIN PACKAGE OPTIONS ***

 1) EDIT MODEL
 2) INITIALIZE MODEL
 3) PRINT CDPS
 4) DISPLAY CDPS

ENTER THE NUMBER OF THE DESIRED OPTION: 2
          WHAT INFORMATION DO YOU WANT TO ENTER?

 1) CDPS
 2) FUND LEVEL
 3) PE NOS.

ENTER THE NUMBER OF THE DESIRED OPTION: 1
CDPS'S ALREADY EXIST. PLEASE USE THE EDIT MODEL
OPTION TO MAKE YOUR CHANGES.

PRESS EXECUTE TO CONTINUE
```

New CDPSs can be added by selecting the ADD A CDPS option under EDIT CDPS. The system will request a CDPS number, a CDPS name, and the items to be included:

```
*** MAIN PACKAGE OPTIONS ***

 1) EDIT MODEL
 2) INITIALIZE MODEL
 3) PRINT CDPS
 4) DISPLAY CDPS

ENTER THE NUMBER OF THE DESIRED OPTION: 1
          EDIT OPTIONS

 1) EDIT PE NOS.
 2) EDIT CDPS
 3) EDIT FUND LVL

ENTER THE NUMBER OF THE DESIRED OPTION: 2
          WHAT CHANGES WOULD YOU LIKE TO MAKE
```

(Continued to the following page)

```
 1) DROP A CDPS
 2) ADD A CDPS
 3) EDIT A CDPS NAME
 4) EDIT A CDPS PACKAGE NO.

ENTER THE NUMBER OF THE DESIRED OPTION: 2
INPUT CDPS NUMBER [300]
INPUT CDPS NAME [CONSOLIDATED PACKAGE THREE                    ]
3000:
ENTER MISSION AREA AND ITEM:
```

Option 1 of EDIT CDPS allows deletion of CDPS. All CDPS numbers are displayed and the user selects the one to be dropped. The items previously included in the set will be assigned 0000 package numbers:

```
            WHAT CHANGES WOULD YOU LIKE TO MAKE

 1) DROP A CDPS
 2) ADD A CDPS
 3) EDIT A CDPS NAME
 4) EDIT A CDPS PACKAGE NO.

ENTER THE NUMBER OF THE DESIRED OPTION: 1
          WHICH CDPS DO YOU WISH TO DELETE?

 1) 100
 2) 200
 3) 300

SELECT THE DESIRED OPTION(S):  3
YOU WISH TO DELETE 300? YES
```

The user can edit the names of CDPSs in Option 3. The system displays the selected set's current name and allows new input between the brackets:

```
                WHAT CHANGES WOULD YOU LIKE TO MAKE

        1) DROP A CDPS
        2) ADD A CDPS
        3) EDIT A CDPS NAME
        4) EDIT A CDPS PACKAGE NO.

      ENTER THE NUMBER OF THE DESIRED OPTION: 3
                WHICH CDPS?

        1) 100
        2) 200
```

```
      SELECT THE DESIRED OPTION(S):  2
      200[CONSOLIDATED DECISION PACKAGE TWO                    ]
```

The fourth EDIT CDPS option can be used to change a package number of an item. The first three digits must be an existing CDPS number and the last digit must be an integer between 0 and 9. Thus there is a restriction of ten items per CDPS. A duplicate number will produce an error message:

```
                WHAT CHANGES WOULD YOU LIKE TO MAKE

        1) DROP A CDPS
        2) ADD A CDPS
        3) EDIT A CDPS NAME
        4) EDIT A CDPS PACKAGE NO.
```

(Continued on following page)

```
ENTER THE NUMBER OF THE DESIRED OPTION: 4
ENTER MISSION AREA AND ITEM: 2 3
 2  3 WRECKER          [1001]
THIS NUMBER IS ALREADY IN USE.
PLEASE RE-ENTER.
ENTER MISSION AREA AND ITEM: 2 3
 2  3 WRECKER          [1003]
ENTER MISSION AREA AND ITEM: 2 2
 2  2 I-HAWK           [2002]
```

CDPS data which has been entered and stored can be displayed on the screen by selecting Option 4 of the MAIN PACKAGE module menu:

```
                *** MAIN PACKAGE OPTIONS ***

  1) EDIT MODEL
  2) INITIALIZE MODEL
  3) PRINT CDPS
  4) DISPLAY CDPS

ENTER THE NUMBER OF THE DESIRED OPTION: 4
```

The user can choose from a list of CDPS numbers and the screen will display the following:

```
CDPS#:100
NAME:CONSOLIDATED PACKAGE ONE
PACKAGE#      MA#      PACKAGE TITLE      FUNDING LEVEL
  1000       1  1      DCT                    BAS
  1001       2  1      LVT PACKAGE            BAS
  1003       2  3      WRECKER                BAS

PRESS EXECUTE TO CONTINUE
```

This option can be used to verify input.

3.3 Output Requirements. Output can be generated upon user request by the selection of various menu options of the modules. In addition, any screen display can be printed by turning on the printer and pressing the keys, CMD and COPY DISPLAY simultaneously. Output is generated for three primary reasons: verification of input, reporting the results of prioritization, and preparing POM summaries for submission.

3.3.1 Output Format. The user can specify the category of output, but cannot specify the format. Upon selection of a particular type, the user is asked to provide a (free format) title or heading, of any length. The categories of output for selection are described in the next section.

3.3.2 Sample Outputs.

3.3.2.1 Information Verification.

a. DISPLAY. The user can check the accuracy of labels and benefit numbers by mission area by selecting the DISPLAY options in either the BUILD module or the EDIT module. In the BUILD module, the display lists in the first column, the mission area items ordered by their item codes, in the second column, the mission benefits assigned to the items, and in the third column, the total life cycle costs assigned to the items. The weight, denoted WT, of the mission area represents the proportion of total model utility derivable from all items within the particular mission area. An example is shown below. Note that the four Tactical Communications programs would provide 66.09% of all possible utility.

MISSION AREA: TACTICAL COMMO WT: 66.09

	ITEM	MISSION BNF	COST
1	1)DCT	100.000	161454
1	2)TDM	45.000	3601
1	3)DWTS	29.000	193140
1	4)TYC-11	16.000	4600

The DISPLAY option in the EDIT module is similar to that of the BUILD module, but has additional information. Column 3, OV.BNF, shows overall benefits; Column 5, C/B, shows the life cycle cost-to-benefit ratios; Column 6, RANK, shows the items' ranks:

MISSION AREA:		TACTICAL COMMO	WT:	66.09		
	ITEM	MISSION BNF	OV. BNF	COST	C/B	RANK
1	1)DCT	100.000	100.000	161454	1614.5	5
1	2)TDM	45.000	45.000	3601	80.0	1
1	3)DWTS	29.000	29.000	193140	6660.0	7
1	4)TYC-11	16.000	16.000	4600	287.5	2

b. LIST COSTS. The user can verify cost data by selection of the LIST COSTS option in the COSTS module:

COSTS OPERATIONS:

1) ENTER COSTS
2) LIST COSTS

ENTER THE NUMBER OF THE DESIRED OPTION: 2

The system will display options for choice of mission area or areas (if more than one area is chosen, the inputs must be separated by one or more spaces):

WHICH MISSION IS TO BE PRINTED?

1) TACTICAL COMMO
2) MARITIME PREPOS
3) ALL ITEMS

SELECT THE DESIRED OPTION(S): 1

The system then requests the type of dollars to be used--

WHICH TYPE OF DOLLARS ARE TO BE USED?

1) CONSTANT
2) ESCALATED

ENTER THE NUMBER OF THE DESIRED OPTION: 1

and then allows the choice of a "terse" or "detailed" listing. A detailed listing includes the extra information of each item's funding level, CDPS package number, and program elements.

```
                WHICH FORMAT IS TO BE USED?

          1) TERSE
          2) DETAILED

        ENTER THE NUMBER OF THE DESIRED OPTION: 1
```

The user then specifies ONE ITEM or ALL ITEMS:

```
                WHICH PRINTOUT ?

          1) ONE ITEM
          2) ALL ITEMS

        ENTER THE NUMBER OF THE DESIRED OPTION: 2
```

The system responds with a message to enter a report heading. After the user presses EXECUTE, he is advised to prepare the printer:

```
REPORT HEADING: TERSE REPORT OF COSTS FOR TACTICAL COMMO
YOU MAY ALIGN THE PAPER AND TURN ON THE PRINTER.
PRESS EXECUTE TO PROCEED.
```

Figure 3-02 illustrates the output generated by the above series of commands. Upon completion of the printing, the screen displays:

```
YOU MAY TURN THE PRINTER OFF.  PRESS EXECUTE TO PROCEED.
```

Selection of the escalated dollars option--

```
                WHICH TYPE OF DOLLARS ARE TO BE USED?

          1) CONSTANT
          2) ESCALATED

        ENTER THE NUMBER OF THE DESIRED OPTION: 2
```

1 1)DCT TACTICAL COMMO

	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	6540	6540	13639	20430	13639	12268
O&MMC	0	215	433	4977	4476	78297
OTHER	0	0	0	0	0	0
LCC TOTAL PER YEAR	6540	6755	14072	25407	18115	90565
TOTAL LCC	161454					

1 2)TDM TACTICAL COMMO

	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	1653	0	0	0	0	0
O&MMC	0	0	162	162	164	1050
OTHER	0	0	43	43	44	280
LCC TOTAL PER YEAR	1653	0	205	205	208	1330
TOTAL LCC	3601					

1 3)DWTS TACTICAL COMMO

	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	16786	16786	16786	16786	16786	96468
O&MMC	0	430	866	1299	1747	8000
OTHER	0	0	0	0	0	400
LCC TOTAL PER YEAR	16786	17216	17652	18085	18533	104868
TOTAL LCC	193140					

1 4)TYC-11 TACTICAL COMMO

	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	0	0	2000	940	1070	0
O&MMC	0	0	0	0	65	420
OTHER	0	0	0	0	0	10
LCC TOTAL PER YEAR	0	0	2000	940	1135	525
TOTAL LCC	4600					

FIGURE 3-02. List Costs Output, Constant Dollars

produces an identically formatted output, with the costs escalated by the annual rates specified in the EDIT module. See Figure 3-03.

Figure 3-04 displays the detailed listing of costs for item 1 1, resulting from the following option choices:

```
                WHICH FORMAT IS TO BE USED?

          1) TERSE
          2) DETAILED

        ENTER THE NUMBER OF THE DESIRED OPTION: 2
                WHICH PRINTOUT ?

          1) ONE ITEM
          2) ALL ITEMS

        ENTER THE NUMBER OF THE DESIRED OPTION: 1
        ENTER THE ITEM NUMBER: 1_1
        REPORT HEADING:DETAILED REPORT OF COSTS FOR DCT
        YOU MAY ALIGN THE PAPER AND TURN ON THE PRINTER.
        PRESS EXECUTE TO PROCEED.
```

c. SHOW WEAK PROGRAMS. This option, available in the EDIT module, provides the capability to identify programs that receive both low overall benefits and poor cost-benefit ratios. This capability is useful for eliminating items when the total number of items exceeds the model's 300-item limit.

The user is asked to specify the "rank" below which items should be displayed:

```
                MAIN EDIT OPTIONS

          1) EDIT MODEL
          2) DISPLAY
          3) SHOW WEAK PROGRAMS

        ENTER THE NUMBER OF THE DESIRED OPTION: 3
        BELOW WHAT RANK?  3
        REPORT HEADING:WEAK PROGRAMS BELOW THE RANK OF 2
        TURN THE PRINTER ON, ALIGN FORMS, PRESS EXECUTE TO CONTINUE
```

1 1)DCT TACTICAL COMMO

	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	7194	7194	15003	22473	15003	12260
O&MMC	0	258	520	5972	5371	78297
OTHER	0	0	0	0	0	0
LCC TOTAL PER YEAR	7194	7452	15523	28445	20374	90565

1 2)TDM TACTICAL COMMO

	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	1818	0	0	0	0	0
O&MMC	0	0	194	194	197	1050
OTHER	0	0	43	43	44	280
LCC TOTAL PER YEAR	1818	0	237	237	241	1330

1 3)IWTS TACTICAL COMMO

	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	18465	18465	18465	18465	18465	96468
O&MMC	0	516	1039	1559	2096	8000
OTHER	0	0	0	0	0	400
LCC TOTAL PER YEAR	18465	18981	19504	20023	20561	104868

1 4)TYC-11 TACTICAL COMMO

	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	0	0	2200	1034	1177	0
O&MMC	0	0	0	0	78	420
OTHER	0	0	0	0	0	105
LCC TOTAL PER YEAR	0	0	2200	1034	1255	525

YOU MAY TURN THE PRINTER OFF. PRESS EXECUTE TO PROCEED.
WHICH MISSION IS TO BE PRINTED?

FIGURE 3-03. List Costs Output, Escalated Dollars

DETAILED REPORT OF COSTS FOR DCT

CONSTANT DOLLARS

1 1)DCT TACTICAL COMMO

FUNDING LEVEL: BAS
CDPS PACKAGE NO.: 1000

	FY83	FY84	FY85	FY86	FY87	OUTYR
PMC	6540	6540	13639	20430	13639	12268
O&MMC	0	215	433	4977	4476	78297
OTHER	0	0	0	0	0	0
LCC TOTAL PER YEAR	6540	6755	14072	25407	18115	90565
TOTAL LCC	161454					

PROGRAM ELEMENTS:
25812M 13200M 43448N 22298N

FIGURE 3-04. List Costs Output, Detailed

The system will print, in order of item code, all items with both an overall benefit rank and a cost-benefit rank below the specified rank. The output identifies the cost-benefit rank as POM and the overall benefit rank as BENEFIT:

```
WEAK PROGRAMS BELOW THE RANK OF 2

CONSTANT  DOLLARS

                ITEM                RANK
                                  POM     BENEFIT
 1  3)DWTS                         7         5
 2  2)I-HAWK                       4         4
```

3.3.2.2 Prioritization Results. A major purpose of the POM software is to produce prioritized lists of items based upon mission area benefits and costs, and cross-mission weights. Pre-formatted printouts of such lists, ordered by various criteria, are available in the ANALYZE module. For the purposes of illustrating the printouts, we use a 5-mission area, 26-item example, rather than the brief 7-item example described in previous sections.

3.3.2.2.1 SORTING the items. Option 2 of the main ANALYZE option provides a menu of sorts available to the user for use in printing reports:

```
                MAIN ANALYZE OPTIONS

     1) PRINT REPORTS
     2) SORT
     3) CROSS-BENEFITS
     4) OVERRIDE RANK

    ENTER THE NUMBER OF THE DESIRED OPTION: 2
              ON WHICH ITEM DO YOU WISH TO SORT?

     1) MISSION AREA & ITEM
     2) MISSION AREA BENEFIT
     3) OVERALL BENEFIT
     4) COST
     5) COST/BENEFIT
     6) RANK
     7) FUNDING LEVEL
     8) NET BENEFIT
```

In most cases, after the user selects the order by which items should be sorted, the system returns to the main menu. The sorting orders are:

a. MISSION AREA AND ITEM. Places the items in order of item code, one mission area after another, with the items of each mission area placed in the order in which they were input during the model's construction. This ordering is the default order. That is, any display or printer listing selected before the "Sort" option has been specified will automatically show the items in this order.

b. MISSION AREA BENEFIT. Sorts the items according to the benefits assigned in the mission areas. If more than one item has been assigned the same benefit, those items are listed in order of the mission area number.

c. OVERALL BENEFIT. Sorts the items according to the overall benefit, thus accounting for the relative importance weights assigned to each mission area's items.

d. COST. Sorts the items in order of decreasing life cycle costs.

e. COST/BENEFIT. Sorts the items in order of increasing ratios of cost to benefit, thus producing an optimal (cost-efficient) order-of-purchase list.

f. RANK. Sorts the items according to a rank based on cost-benefit order, dominated by items that override rank. See Section 3.2.4.6.

g. FUNDING LEVEL. Sorts the items first by their funding levels in the order, MIN, BAS, EHC, O/G, UNF, then by item code within a funding level.

h. NET BENEFIT. Sorts the items according to a quantity that represents the items' "net" benefit, i.e., their overall benefits minus an adjustment for their costs. Let λ be the benefit-cost ratio of an item considered to be just worth its cost. Then we calculate, for all items:

$$\text{NET BENEFIT} = \text{OVERALL BENEFIT} - \lambda \times \text{COST}.$$

A net benefit sort would separate cost-effective items (ones with positive net benefits) from items that are not cost-effective (ones with negative net benefits). The ordering

differs from a cost-benefit ordering by sorting according to the magnitude of the resultant discounted benefit rather than the magnitude of the cost-benefit ratio, thus tending to move high-benefit items to the top of the list when they are even marginally cost effective.

Selection of this sort option requires the input of an item code to be used as a basis for λ:

```
 1) PRINT REPORTS
 2) SORT
 3) CROSS-BENEFITS
 4) OVERRIDE RANK

ENTER THE NUMBER OF THE DESIRED OPTION: 2
          ON WHICH ITEM DO YOU WISH TO SORT?

 1) MISSION AREA & ITEM
 2) MISSION AREA BENEFIT
 3) OVERALL BENEFIT
 4) COST
 5) COST/BENEFIT
 6) RANK
 7) FUNDING LEVEL
 8) NET BENEFIT

ENTER THE NUMBER OF THE DESIRED OPTION: 8
WHAT ITEM DO YOU WISH TO USE AS A BASIS
FOR THE NET BENEFIT SORT?
ENTER MISSION AREA AND ITEM: 5 5
```

3.3.2.2.2 PRINTING REPORTS. Selection of Option 2 of the ANALYZE menu gives the user the choice of four types of reports:

```
                MAIN ANALYZE OPTIONS

 1) PRINT REPORTS
 2) SORT
 3) CROSS-BENEFITS
 4) OVERRIDE RANK

ENTER THE NUMBER OF THE DESIRED OPTION: 1
          PRINTED REPORTS:

 1) REPORT BENEFITS
 2) REPORT MISSION AREA
 3) PRINT COSTS
 4) CB VS. BNF
```

The first three of these options will list information about items in the order specified by SORT. The default sort is mission area and item (item code). The system will retain the last previous sort until another sort is chosen or the user leaves the ANALYZE module.

a. REPORT BENEFITS. REPORT BENEFITS will produce seven columns of data for each item, sorted in the specified order. It includes the item's code and name, funding level, mission benefit, overall benefit, life cycle costs, cost-benefit ratio, and rank. After selection of this option the user presses EXECUTE and is asked to provide a title, after which the system gives a message to turn on the printer:

```
ENTER THE NUMBER OF THE DESIRED OPTION:
REPORT HEADING:
YOU MAY ALIGN THE PAPER AND TURN ON THE PRINTER.
PRESS EXECUTE TO PROCEED.
```

In summary, the procedure for producing a benefit report is as follows:

(1))LOAD ANALYZE
(2) Select Option 2, SORT from the main menu.
(3) Select one of eight possible sorts.
(4) When the screen returns to the main menu, select Option 1, PRINT REPORTS.
(5) Select Option 1, REPORT BENEFITS.
(6) Provide title for report.
(7) Turn on printer, press EXECUTE.
(8) When the printing stops, turn off the Printer and press EXECUTE.

An example of this procedure is shown in Figure 3-05.

The resultant output is displayed in Figures 3-06 to 3-11, each figure representing a benefit report sorted by a different criterion.

b. REPORT MISSION AREA. When the user selects this option, the system responds with a display of all mission areas from which the user chooses one or more, then provides a report title:

```
      )LOAD ANALYZE
LOADED 11003 ANALYZE
*** ANALYZE MODULE ***

THE DISC THAT IS INSERTED CONTAINS MODEL

*PRESS EXECUTE TO PROCEED.
          MAIN ANALYZE OPTIONS

  1) PRINT REPORTS
  2) SORT
  3) CROSS-BENEFITS
  4) OVERRIDE RANK

 ENTER THE NUMBER OF THE DESIRED OPTION: 2
          ON WHICH ITEM DO YOU WISH TO SORT?

  1) MISSION AREA & ITEM
  2) MISSION AREA BENEFIT
  3) OVERALL BENEFIT
  4) COST
  5) COST/BENEFIT
  6) RANK
  7) FUNDING LEVEL
  8) NET BENEFIT

*ENTER THE NUMBER OF THE DESIRED OPTION: 1
          MAIN ANALYZE OPTIONS

  1) PRINT REPORTS
  2) SORT
  3) CROSS-BENEFITS
  4) OVERRIDE RANK

*ENTER THE NUMBER OF THE DESIRED OPTION: 1
          PRINTED REPORTS:

*  1) REPORT BENEFITS
   2) REPORT MISSION AREA
   3) PRINT COSTS
   4) CB VS. BNF

*ENTER THE NUMBER OF THE DESIRED OPTION: 1
*REPORT HEADING:REPORT BENEFITS;  SORTED BY ITEM CODE
 YOU MAY ALIGN THE PAPER AND TURN ON THE PRINTER.
 PRESS EXECUTE TO PROCEED.
```

FIGURE 3-05. Report Benefits Output Initiation

OVERALL POM

REPORT BENEFITS: SORTED BY ITEM CODE

	ITEM	FUNDING LEVEL	MISSION BNF.	OV. BNF.	COST	C/B	RANK
1	1)D510 COPPERHEAD	BAS	23.000	6.702	65556	9782.1	20
1	2)D69T 8 IN LG	MIN	6.000	1.748	33617	19228.9	22
1	3)D67T JAMMER RD	MIN	2.300	.670	10211	15236.6	21
1	4)D59T 155 TNG RD	UNF	1.400	.408	3979	9754.2	19
1	5)AMMO 30 DAYS	MIN	345.200	100.000	784414	7844.1	18
1	6)AMMO BL	BAS	20.000	5.820	120643	20702.3	23
2	1)TOW PIP	MIN	80.000	23.322	20434	876.2	7
2	2)DRAGON MOD	MIN	44.000	12.827	6652	518.6	5
2	3)TOW MOD	MIN	28.500	8.308	3652	439.6	4
2	4)TOW NGT SGT MOD	MIN	27.500	8.017	3352	418.1	3
2	5)BN MORTAR SYS	UNF	6.500	1.895	9000	4749.6	17
2	6)E1180 45 PISTOL	UNF	.010	.003	397	99999.0	26
3	1)MULE	BAS	70.000	20.408	73344	3593.9	15
3	2)XM36E1 FZ SET	MIN	30.500	8.892	905	101.8	1
3	3)ARTY COMP SYS	UNF	29.500	8.600	11000	1279.0	9
3	4)E0665 M198 PWR	MIN	23.500	6.851	17732	2588.7	13
3	5)PADS	O/G	22.500	6.560	12451	1898.1	12
3	6)M110 MOD	MIN	20.000	5.831	1099	188.5	2
4	1)NBC UNITS	UNF	39.000	1.134	54600	48160.9	25
4	2)BIO DETECT EQP	MIN	31.000	.901	1170	1298.3	10
5	1)STINGER SYS NN1	MIN	100.000	50.447	51211	1015.1	8
5	2)TAOC-85	BAS	100.000	50.447	145938	2892.9	14
5	3)IHAWK MOD/PIP	MIN	40.000	20.179	17601	872.2	6
5	4)ECCM	ENH	10.000	5.045	8560	1696.8	11
5	5)AN/TPS-32 MOD	MIN	4.000	2.018	9260	4588.9	16
5	6)STINGER MOD	UNF	1.000	.504	14215	28177.9	24

FIGURE 3-06. Report Benefits Output, Item-Code Order

OVERALL PJM

REPORT BENEFITS: SORTED BY OVERALL BENEFIT

	ITEM	FUNDING LEVEL	MISSION BNF.	OV. BNF.	COST	C/B	RANK
1	5)AMMO 30 DAYS	MIN	343.200	100.000	784414	7844.1	18
5	1)STINGER SYS N#1	MIN	100.000	50.447	51211	1015.1	8
5	2)TAOC-85	BAS	100.000	50.447	145938	2892.9	14
2	1)TOW PIP	MIN	80.000	23.322	20434	876.2	7
3	1)MULE	BAS	70.000	20.408	73344	3593.9	15
5	3)IHAWK MOD/PIP	MIN	40.000	20.179	17601	872.2	6
2	2)DRAGON MOD	MIN	44.000	12.827	6652	518.6	5
3	2)XM36E1 FZ SET	MIN	30.500	8.892	905	101.8	1
3	3)ARTY COMP SYS	UNF	29.500	8.600	11000	1279.0	9
2	3)TOW MOD	MIN	28.500	8.308	3652	439.6	4
2	4)TOW NGT SGT MOD	MIN	27.500	8.017	3352	418.1	3
3	4)E0665 M198 PWR	MIN	23.500	6.851	17732	2588.2	13
1	1)M510 COPPERHEAD	BAS	23.000	6.702	65556	9782.1	20
3	5)PADS	O/G	22.500	6.560	12451	1898.1	12
3	6)M110 MOD	MIN	20.000	5.831	1099	188.5	2
1	6)AMMO BL	BAS	20.000	5.828	120643	20702.3	23
5	4)ECCM	ENH	10.000	5.045	8560	1696.8	11
5	5)AN/TPS-32 MOD	MIN	4.000	2.018	9260	4588.9	16
2	5)8N MORTAR SYS	UNF	6.500	1.895	9000	4749.6	17
1	2)M69T 8 IN L3	MIN	6.000	1.748	33617	19228.9	22
4	1)NBC UNITS	UNF	39.000	1.134	54600	48160.9	25
4	2)BIO DETECT EQP	MIN	31.000	.961	1170	1298.3	10
1	3)M67T JAMMER RD	MIN	2.300	.670	10211	15236.6	21
5	6)STINGER MOD	UNF	1.000	.504	14215	28177.9	24
1	4)M59T 155 TNG RD	UNF	1.400	.408	3979	9754.2	19
2	6)E1180 45 PISTOL	UNF	.010	.003	397	99999.0	26

FIGURE 3-07. Report Benefits Output, Overall-Benefit Order

	ITEM	FUNDING LEVEL	MISSION BNF.	OV BNF.	COST	C/B	RANK
1	5)AMMO 30 DAYS	MIN	343.200	100.000	784414	7844.1	18
5	2)TADC-85	BAS	100.000	50.447	145938	2892.9	14
1	6)AMMO BL	BAS	20.000	5.828	120643	20702.3	23
3	1)MULE	BAS	70.000	20.408	73344	3593.9	15
1	1)D510 COPPERHEAD	BAS	23.000	6.702	65556	9782.1	20
4	1)NBC UNITS	UNF	39.000	1.134	54600	48160.9	25
5	1)STINGER SYS NM1	MIN	100.000	50.447	51211	1015.1	8
1	2)D69T 8 IN LG	MIN	6.000	1.748	33617	19228.9	22
2	1)TOW PIP	MIN	80.000	23.322	20434	876.2	7
3	4)E0665 M198 PWR	MIN	23.500	6.851	17732	2588.2	13
5	3)IHAWK MOD/PIP	MIN	40.000	20.179	17601	872.2	6
5	6)STINGER MOD	UNF	1.000	.504	14215	28177.9	24
3	5)PADS	O/G	22.500	6.560	12451	1898.1	12
3	3)ARTY COMP SYS	UNF	29.500	8.600	11000	1279.0	9
1	3)D67T JAMMER RD	MIN	2.300	.670	10211	15236.6	21
5	5)AN/TPS-32 MOD	MIN	4.000	2.018	9260	4588.9	16
2	5)RN MORTAR SYS	UNF	6.500	1.895	9000	4749.6	17
5	4)ECCM	ENH	10.000	5.045	8560	1696.8	11
2	2)DRAGON MOD	MIN	44.000	12.827	6652	518.6	5
1	4)D59T 155 TNG RD	UNF	1.400	.408	3979	9754.2	19
2	3)TOW MOD	MIN	28.500	8.308	3652	439.6	4
2	4)TOW NGT SGT MOD	MIN	27.500	8.017	3352	418.1	3
4	2)BIO DETECT EQP	MIN	31.000	.901	1170	1298.3	10
3	6)M110 MOD	MIN	20.000	5.831	1099	188.5	2
3	2)XM564E1 FZ SET	MIN	30.500	8.892	905	101.8	1
2	6)E1180 45 PISTOL	UNF	.010	.003	397	99999.0	26

FIGURE 3-08. Report Benefits Output, Cost Order

	ITEM	FUNDING LEVEL	MISSION BNF.	OV. BNF.	COST	C/B	RANK
[illegible]	2)XM36E1 FZ SET	MIN	30.500	8.892	905	101.8	1
3	6)M110 MOD	MIN	20.000	5.831	1099	188.5	2
2	4)TOW NGT SGT MOD	MIN	27.500	8.017	3352	418.1	3
2	3)TOW MOD	MIN	28.500	8.308	3652	439.6	4
2	2)DRAGON MOD	MIN	44.000	12.827	6652	518.6	5
5	3)IHAWK MOD/PIP	MIN	40.000	20.179	17601	872.2	6
2	1)TOW PIP	MIN	80.000	23.322	20434	876.2	7
5	1)STINGER SYS NN1	MIN	100.000	50.447	51211	1015.1	8
3	3)ARTY COMP SYS	UNF	29.500	8.600	11000	1279.0	9
4	2)BIO DETECT EQP	MIN	31.000	.901	1170	1298.3	10
5	4)ECCM	ENH	10.000	5.045	8560	1696.8	11
3	5)PADS	O/G	22.500	6.560	12451	1898.1	12
3	4)E0665 M198 PWR	MIN	23.500	6.851	17732	2588.2	13
5	2)TAOC-85	BAS	100.000	50.447	145938	2894.9	14
3	1)MULE	BAS	70.000	20.408	73344	3593.9	15
5	5)AN/TPS-32 MOD	MIN	4.000	2.018	9260	4588.9	16
2	5)8N MORTAR SYS	UNF	6.500	1.895	9000	4749.6	17
1	5)AMMO 30 DAYS	MIN	343.200	100.000	784414	7844.1	18
1	4)D59T 155 TNG RD	UNF	1.400	.408	3979	9754.2	19
1	1)D510 COPPERHEAD	BAS	23.000	6.702	65556	9782.1	20
1	3)D67T JAMMER RD	MIN	2.300	.670	10211	15236.6	21
1	2)D69T 8 IN LG	MIN	6.000	1.748	33617	19228.9	22
1	6)AMMO BL	BAS	20.000	5.828	120643	20702.3	23
5	6)STINGER MOD	UNF	1.000	.504	14215	28177.9	24
4	1)NBC UNITS	UNF	39.000	1.134	54[illegible]	48160.9	25
2	6)E1180 45 PISTOL	UNF	.010	.003	3[illegible]	99999.0	26

FIGURE 3-09. Report Benefits Output, Cost-Benefit Ratio Order

OVERALL POM

REPORT BENEFITS: SORTED BY FUNDING LEVEL

	ITEM	FUNDING LEVEL	MISSION BNF.	OV. BNF.	COST	C/B	RANK
1	2)D69T 8 IN LG	MIN	6.000	1.748	33617	19228.9	22
1	3)D67T JAMMER RD	MIN	2.300	.670	10211	15236.6	21
1	5)AMMO 30 DAYS	MIN	343.200	100.000	784414	7844.1	18
2	1)TOW PIP	MIN	80.000	23.322	20434	876.2	7
2	2)DRAGON MOD	MIN	44.000	12.827	6652	518.6	5
2	3)TOW MOD	MIN	28.500	8.308	3652	439.6	4
2	4)TOW NGT SGT MOD	MIN	27.500	8.017	3352	418.1	3
3	2)XM36E1 FZ SET	MIN	30.500	8.892	905	101.8	1
3	4)E0665 M198 PWR	MIN	23.500	6.851	17732	2588.2	13
3	6)M110 MOD	MIN	20.000	5.831	1099	188.5	2
4	2)BIO DETECT EQP	MIN	31.000	.901	1170	1298.3	10
5	1)STINGER SYS NMI	MIN	100.000	50.447	51211	1015.1	8
5	3)IHAWK MOD/PIP	MIN	40.000	20.179	17601	872.2	6
5	5)AN/TPS-32 MOD	MIN	4.000	2.018	9260	4588.9	16
1	1)D510 COPPERHEAD	BAS	23.000	6.702	65556	9782.1	20
1	6)AMMO BL	BAS	20.000	5.828	120643	20702.3	23
3	1)MULE	BAS	70.000	20.408	73344	3593.9	15
5	2)TAOC-85	BAS	100.000	50.447	145938	2892.9	14
5	4)ECCM	ENH	10.000	5.045	8560	1696.8	11
3	5)PADS	O/G	22.500	6.560	12451	1898.1	12
1	4)D59T 155 TNG RD	UNF	1.400	.408	3979	9754.2	19
2	5)BN MORTAR SYS	UNF	6.500	1.895	9000	4749.6	17
2	6)E1180 45 PISTOL	UNF	.010	.003	397	99999.0	26
3	3)ARTY COMP SYS	UNF	29.500	8.600	11000	1279.0	9
4	1)NBC UNITS	UNF	39.000	1.134	54600	4816.9	25
5	6)STINGER MOD	UNF	1.000	.504	14215	28177.9	24

FIGURE 3-10. Report Benefits Output, Funding Level Order

OVERALL POM

REPORT BENEFITS: SORTED BY NET BENEFIT WITH ITEM 5 5 AS THE BASIS

	ITEM	FUNDING LEVEL	MISSION BNF.	OV. BNF.	COST	C/B	RANK
5	1)STINGER SYS NN1	MIN	100.000	50.447	51211	1015.1	8
2	1)TOW PIP	MIN	80.000	23.322	20434	876.2	7
5	2)TAOC-85	BAS	100.000	50.447	145938	2892.9	14
5	3)IHAWK MOD/PIP	MIN	40.000	20.179	17601	872.2	6
2	2)DRAGON MOD	MIN	44.000	12.827	6652	518.6	5
3	2)XM36E1 FZ SET	MIN	30.500	8.892	905	101.8	1
2	3)TOW MOD	MIN	28.500	8.308	3652	439.6	4
2	4)TOW NGT SGT MOD	MIN	27.500	8.017	3352	418.1	3
3	3)ARTY COMP SYS	UNF	29.500	8.600	11000	1279.0	9
3	6)M110 MOD	MIN	20.000	5.831	1099	188.5	2
3	1)MULE	BAS	70.000	20.408	73344	3593.9	15
3	5)PADS	O/G	22.500	6.560	12451	1898.1	12
5	4)ECCM	ENH	10.000	5.045	8560	1696.8	11
3	4)E0665 M198 PWR	MIN	23.500	6.851	17732	2588.2	13
4	2)BIO DETECT EQP	MIN	31.000	.901	1170	1298.3	10
5	5)AN/TPS-32 MOD	MIN	4.000	2.018	9260	4588.9	16
2	5)BN MORTAR SYS	UNF	6.500	1.895	9000	4749.6	17
2	6)E1180 45 PISTOL	UNF	.010	.003	397	99999.0	26
1	4)D59T 155 TNG RD	UNF	1.400	.408	3979	9754.2	19
1	3)D67T JAMMER RD	MIN	2.300	.670	10211	15236.6	21
5	6)STINGER MOD	UNF	1.000	.504	14215	28177.9	24
1	2)D69T 8 IN LG	MIN	6.000	1.748	33617	19228.9	22
1	1)D510 COPPERHEAD	BAS	23.000	6.702	65556	9782.1	20
4	1)NBC UNITS	UNF	39.000	1.134	54600	48160.9	25
1	6)AMMO BL	BAS	20.000	5.828	120643	20702.3	23
1	5)AMMO 30 DAYS	MIN	343.200	100.000	784414	7844.1	18

FIGURE 3-11. Report Benefits Output, Net Benefit Order

```
          PRINTED REPORTS:

 1) REPORT BENEFITS
 2) REPORT MISSION AREA
 3) PRINT COSTS
 4) CB VS. BNF

ENTER THE NUMBER OF THE DESIRED OPTION: 2
          WHICH MISSION AREA WOULD YOU LIKE TO SEE?

 1) AMMUNITION
 2) CLOSE COMBAT
 3) FIRE SUPPORT
 4) LAND COMBAT SPT
 5) AIR DEFENSE



SELECT THE DESIRED OPTION(S): 1
REPORT HEADING:AMMUNITION MISSION AREA BENEFIT REPORT:  SORTED BY MISSION AREA BENEFIT
YOU MAY ALIGN THE PAPER AND TURN ON THE PRINTER.
PRESS EXECUTE TO PROCEED.
```

The mission area report provides the same information as the benefit report for any desired subset of mission areas, plus the mission area name(s) and weight(s); see Figure 3-12, below.

MISSION AREA: WT:
AMMUNITION 32.26

	ITEM	FUNDING LEVEL	MISSION BNF.	OV. BNF.	COST	C/B	RANK
1	5)AMMO 30 DAYS	MIN	343.200	100.000	784414	7844.1	18
1	1)D510 COPPERHEAD	BAS	23.000	6.702	65556	9782.1	20
1*	6)AMMO BL	BAS	20.000	5.828	120643	20702.3	23
1	2)D69T 8 IN LG	MIN	6.000	1.748	33617	19228.9	22
1	3)D67T JAMMER RD	MIN	2.300	.670	10211	15236.6	21
1	4)D59T 155 TNG RD	UNF	1.400	.408	3979	9754.2	19

FIGURE 3-12. Report Mission Area Output for the Ammunition Mission, Sorted by Mission Benefit

In addition to mission area benefit sorts, this report can be used to list one or more mission area's items by any of the other sort criteria. An example is shown in Figure 3-13.

MISSION AREA: AMMUNITION WT: 32.26

	ITEM	FUNDING LEVEL	MISSION BNF.	OV. BNF.	COST	C/B	RANK
*1	5)AMMO 30 DAYS	MIN	343.200	100.000	784414	7844.1	18
1	4)D59T 155 TNG RD	UNF	1.400	.408	3979	9754.2	19
1	1)D510 COPPERHEAD	BAS	23.000	6.702	65556	9782.1	20
1	3)D67T JAMMER RD	MIN	2.300	.670	10211	15236.6	21
1	2)D69T 8 IN LG	MIN	6.000	1.748	33617	19228.9	22
1	6)AMMO BL	BAS	20.000	5.828	120643	20702.3	23

FIGURE 3-13. Report Mission Area Output for the Ammunition Mission, Sorted by Cost/Benefit

c. OVERRIDE RANK. The RANK sort differs from the COST/BENEFIT sort only when individual items are assigned specific ranks. These ranks are input using the fourth option of the ANALYZE menu. The system gives input directions, prompts for item codes, and then asks the user to verify the item names:

```
MAIN ANALYZE OPTIONS

1) PRINT REPORTS
2) SORT
3) CROSS-BENEFITS
4) OVERRIDE RANK

ENTER THE NUMBER OF THE DESIRED OPTION: 4
ENTER THE ITEMS WHICH MUST BE BOUGHT IN THE ORDER REQUIRED.
ENTER MISSION AREA AND ITEM: 1 5
YOU WISH TO BUY: AMMO 30 DAYS? YES
ENTER MISSION AREA AND ITEM: 4 1
YOU WISH TO BUY: NBC UNITS? YES
```

The items will be assigned ranks, starting with a rank of 1, according to the order of input. To edit these ranks, the user must start again and re-enter the correct order. Selection of the OVERRIDE option erases any previous ranking input.

A benefit report of the items sorted by rank is shown in Figure 3-14.

d. COST-BENEFIT VS. BENEFIT REPORT. The user can compare the order-of-purchase indicated by two sorts, OVERALL BENEFIT and COST/BENEFIT, within a mission area, by selection of the fourth option of the PRINTED REPORTS menu:

```
                MAIN ANALYZE OPTIONS

        1) PRINT REPORTS
        2) SORT
        3) CROSS-BENEFITS
        4) OVERRIDE RANK

      ENTER THE NUMBER OF THE DESIRED OPTION: 1
                PRINTED REPORTS:

        1) REPORT BENEFITS
        2) REPORT MISSION AREA
        3) PRINT COSTS
        4) CB VS. BNF
```

Upon selection of Option 4, the system will display a menu of mission areas to choose from, allow a title to be input, and provide instructions for printing:

```
                WHICH MISSION AREA DO YOU WISH TO EXAMINE?

        1) AMMUNITION
        2) CLOSE COMBAT
        3) FIRE SUPPORT
        4) LAND COMBAT SPT
        5) AIR DEFENSE


        SELECT THE DESIRED OPTION(S):  5
        REPORT HEADING:AIR DEFENSE  COST VS COST/BENEFIT
        YOU MAY ALIGN THE PAPER AND TURN ON THE PRINTER.
        PRESS EXECUTE TO PROCEED.
```

OVERALL POM

REPORT BENEFITS: SORTED BY RANK

	ITEM	FUNDING LEVEL	MISSION BNF.	OV. BNF.	COST	C/B	RANK
1	5)AMMO 30 DAYS	MIN	343.200	100.000	784414	7844.1	1
4	1)NBC UNITS	UNF	39.000	1.134	54600	48160.9	2
3	2)XM36E1 FZ SET	MIN	30.500	8.892	905	101.8	3
3	6)M110 MOD	MIN	20.000	5.831	1099	188.5	4
2	4)TOW NGT SGT MOD	MIN	27.500	8.017	3352	418.1	5
2	3)TOW MOD	MIN	28.500	8.308	3652	439.6	6
2	2)DRAGON MOD	MIN	44.000	12.827	6652	518.6	7
5	3)IHAWK MOD/PIP	MIN	40.000	20.179	17601	872.2	8
2	1)TOW PIP	MIN	80.000	23.322	20434	876.2	9
5	1)STINGER SYS NM1	MIN	100.000	50.447	51211	1015.1	10
3	3)ARTY COMP SYS	UNF	29.500	8.600	11000	1279.0	11
4	2)BIO DETECT EQP	MIN	31.000	.901	1170	1298.3	12
5	4)ECCM	ENH	10.000	5.045	8560	1696.8	13
3	5)PADS	O/G	22.500	6.560	12451	1898.1	14
3	4)E0665 M198 PWR	MIN	23.500	6.851	17732	2588.2	15
5	2)TAOC-85	BAS	100.000	50.447	145938	2892.9	16
3	1)MULE	BAS	70.000	20.408	73344	3593.9	17
5	5)AN/TPS-32 MOD	MIN	4.000	2.018	9260	4588.9	18
2	5)BN MORTAR SYS	UNF	6.500	1.895	9000	4749.6	19
1	4)D591 155 TNG RD	UNF	1.400	.408	3979	9754.2	20
1	1)D510 COPPERHEAD	BAS	23.000	6.702	65556	9782.1	21
1	3)D671 JAMMER RD	MIN	2.300	.670	10211	15236.6	22
1	2)D691 8 IN LG	MIN	6.000	1.748	33617	19228.9	23
1	6)AMMO BL	BAS	20.000	5.828	120643	20702.3	24
5	6)STINGER MOD	UNF	1.000	.504	14215	28177.9	25
2	6)E1180 45 PISTOL	UNF	.010	.003	397	99999.0	26

FIGURE 3-14. Report Benefits Output, Rank Order

The output, illustrated in Figure 3-15, shows the items ordered by benefit on the left, with the respective cumulative benefits and costs in the second and third columns. The columns on the right half show the item's cumulative costs, benefits, and labels ordered by the cost-benefit criterion.

MISSION AREA:
AIR DEFENSE

ORDERED BY BENEFIT	BNF	---ACCUMULATED--- COST	COST	BNF	ORDERED BY COST BENEFIT
			17601	40	IHAWK MOD/PIP
STINGER SYS N#1	100	51211			
			68812	140	STINGER SYS N#1
			77372	150	ECCM
TAOC-85	200	197149			
IHAWK MOD/PIP	240	214750			
ECCM	250	223310	223310	250	TAOC-85
AN/TPS-32 MOD	254	232570	232570	254	AN/TPS-32 MOD
STINGER MOD	255	246785	246785	255	STINGER MOD

FIGURE 3-15. Air Defense Benefit versus Cost/Benefit Constant Dollars

e. PRINT COSTS. The reports most frequently used by the POM working group show the cost data for each item across all time periods. The POM-DBMS system allows the user to print such reports in several ways. For each report the user must specify a choice for each of the following options:

1. Item sort order
2. One resource or the life cycle cost
3. Constant or escalated dollars
4. One or all of the five funding levels
5. One or more mission areas.

An example of a sequence of choices is shown below:

```
RUN
     MAIN ANALYZE OPTIONS

 1) PRINT REPORTS
 2) SORT
 3) CROSS-BENEFITS
 4) OVERRIDE RANK

ENTER THE NUMBER OF THE DESIRED OPTION: 2
          ON WHICH ITEM DO YOU WISH TO SORT?

 1) MISSION AREA & ITEM
 2) MISSION AREA BENEFIT
 3) OVERALL BENEFIT
 4) COST
 5) COST/BENEFIT
 6) RANK
 7) FUNDING LEVEL
 8) NET BENEFIT

ENTER THE NUMBER OF THE DESIRED OPTION: 7
          MAIN ANALYZE OPTIONS

 1) PRINT REPORTS
 2) SORT
 3) CROSS-BENEFITS
 4) OVERRIDE RANK
```

(Continued on the following page)

```
ENTER THE NUMBER OF THE DESIRED OPTION: 1
          PRINTED REPORTS:

 1) REPORT BENEFITS
 2) REPORT MISSION AREA
 3) PRINT COSTS
 4) CB VS. BNF

ENTER THE NUMBER OF THE DESIRED OPTION: 3
          PRINT WHICH COST?

 1) PMC
 2) O&MMC
 3) OTHER
 4) LIFE CYCLE

ENTER THE NUMBER OF THE DESIRED OPTION: 4
          COSTS IN WHICH DOLLAR TYPE?

 1) CONSTANT
 2) ESCALATED

ENTER THE NUMBER OF THE DESIRED OPTION: 2

          PRINT WHICH FUNDING LEVEL?

 1) MIN
 2) BAS
 3) ENH
 4) O/G
 5) UNF
 6) ALL LEVELS

ENTER THE NUMBER OF THE DESIRED OPTION: 6
          PRINT.WHICH MISSION AREA?

 1) TACTICAL COMMO
 2) MARITIME PREPOS
 3) AMMUNITION
 4) TAC C2 GROUND
 5) ADP/DATA COMMO
 6) ALL MISSIONS


 SELECT THE DESIRED OPTION(S):  1 4 5
```

After the combination has been chosen, the system requests a report title and gives instructions:

```
REPORT HEADING:ESCALATED LIFE CYCLE COST REPORT OF ITEMS
IN C4 MISSION AREAS, SORTED BY FUNDING LEVEL
YOU MAY ALIGN THE PAPER AND TURN ON THE PRINTER.
PRESS EXECUTE TO PROCEED.
```

The subsequent output is shown in Figure 3-16. Two other examples of cost reports are illustrated in Figures 3-17 and 3-18.

Figure 3-16 represents a report to a mission area sponsor, in this case, C4, with three mission areas. The items are sorted by funding level and their overall benefits are displayed. The first six columns of cost data show the escalated life cycle costs per year for the respective items. The last five columns show the same costs cumulated down the list.

Figure 3-17 displays a report of all minimum level items. The items are sorted by net benefit, and the cost data are reported as in Figure 3-16.

Figure 3-18 contains all items in the POM, sorted by overall benefit, with their respective yearly costs.

3.3.2.3 Output for POM Programming. The POM-DBMS software can assist the USMC in the preparation of the POM submission by printing reports of CDPSs. The user can select a cost type--one resource or all life cycle costs; a dollar type--constant or escalated; and the CDPSs to be printed. The input sequence is as follows:

```
)LOAD PACKAGE
LOADED 11015 PACKAGE
*** PACKAGE MODULE ***

THE DISC THAT IS INSERTED CONTAINS MODEL POM 83-87

PRESS EXECUTE TO CONTINUE
          *** MAIN PACKAGE OPTIONS ***

 1) EDIT MODEL
 2) INITIALIZE MODEL
 3) PRINT CDPS
 4) DISPLAY CDPS

ENTER THE NUMBER OF THE DESIRED OPTION: 3
```

(Continued on the following page)

CONSOLIDATED DECISION PACKAGE SETS
(FYDP $ 000)
BASIC LEVEL

CDPS 100--ESCALATED PMC COST REPORT
COST TYPE: PMC

CDPSN	PACKAGEN	MAN	CDPS/PACKAGE TITLE	FY83	FY84	FY85	FY86	FY87
100			BASIC CONSOLIDATED DECISION PACKAGE SET					
	1000	2 1	LVT PACKAGE	6050	6050	17105	17105	6105
	1001	2 2	I-HAWK	4070	4070	4070	3003	3003
	1002	3 2	DS10 COPPERHEAD	614	12841	12485	18272	27899
	1003	3 3	AMMO BL	0	0	22744	46582	63383
			TOTAL	10734	22961	56403	84962	100390

FIGURE 3-16. Print Costs Output for C4 Missions, Funding-Level Order

PUM LIFE CYCLE
MIN FUNDING LEVEL

COST REPORT FOR ALL MINIMUM LEVEL ITEMS, SORTED BY NET BENEFIT (WITH ITEM 3.1, AMMO 30 DAYS, AS THE BASIS)

ESCALATED DOLLARS

	ITEM	UV BNF.	COST FYB3	FY84	FY85	FY86	FY87	OUTYR	CUMULATIVE COST FYB3	FY84	FY85	FY86	FY87
5	4) DISKETTE CONV	57.523	13041	3111	174	174	175	0	13041	3111	174	174	175
1	1) DCT	61.257	255	17	17	17	17	70	13296	3128	191	191	192
5	5) ADP CURCAP REPL	33.845	0	4419	4427	110	110	440	13296	7547	4618	301	304
1	2) TDM	27.566	13471	17373	37190	33375	39847	0	26767	24920	49808	33676	40150
1	4) TYC-11	9.801	7194	7441	15501	20197	20150	98565	33961	32361	55389	61873	60301
4	3) TCO	25.169	0	0	40787	41064	35167	0	33961	32361	104896	102936	95467
3	1) AMMO 30 DAYS	100.000	481	1135	1014	1822	1822	180	34442	33496	105910	104759	97290
3	7) D68F JAMMER RD	.671	1818	0	229	229	233	1530	36261	33496	106139	104988	97522
3	5) D691 8 IN LG	1.749	4415	4415	4417	3745	3475	9510	40676	37911	110451	108232	100997
5	8) ADPE REPLACEMNT	.490	6050	6406	17565	21360	18860	48790	46726	44310	128016	129592	111857

FIGURE 3-17. Print Costs Output of All Min Items, Sorted by Net Benefits

POM LIFE CYCLE

COST REPORT FOR ALL ITEMS, SORTED BY OVERALL BENEFIT

ESCALATED DOLLARS

	ITEM	FUNDING LEVEL	OV. BNF.	COST FY83	FY84	FY85	FY86	FY87	OUTYR	CUMULATIVE COST FY83	FY84	FY85	FY86	FY87
3	1) AMMO 30 DAYS	MIN	100.000	100459	129246	168333	198790	266020	0	100459	129246	168333	198790	266020
5	3) IBM 360 REPLACE	BAS	67.314	13041	3111	174	174	175	0	113500	132357	168507	198963	266203
1	1) DCT	MIN	61.257	7194	7441	15501	28197	20150	90565	120694	139798	184007	227160	286353
4	1) PLRS	BAS	58.932	13471	17373	35190	33375	39847	0	134165	157171	219198	260535	326200
5	4) DISKETTE CONV	MIN	57.523	255	17	17	17	17	70	134420	157180	219215	260552	326217
5	2) RJE REPLACEMENT	O/G	56.299	0	4419	4427	110	112	445	134420	161607	223642	260662	326329
4	2) MIFASS	BAS	53.407	0	0	48787	41064	35167	0	134420	161607	272429	301726	361496
5	5) ADP CURCAP REPL	MIN	33.045	481	1135	1814	1822	1822	180	134901	162742	274243	303548	363318
2	1) LVT PACKAGE	BAS	30.571	6050	6406	17565	21360	10860	48790	140951	169148	291808	324908	374178
1	2) TDM	MIN	27.566	1818	0	229	229	233	1330	142769	169148	292037	325138	374411
4	3) TCO	MIN	25.169	0	0	0	55332	70023	66140	142769	169148	292037	380469	444434
2	2) I HAWK	BAS	24.457	4415	4415	4312	3245	3475	5510	147184	173563	296349	383714	447909
4	4) PLRS EL	ENH	21.486	23667	18970	6838	5702	2079	0	170052	192533	303187	389416	449908
4	5) GPS	BAS	18.416	0	0	0	1715	3650	6175	170052	192533	303187	391131	453630
1	3) INTS	O/G	17.765	10465	10959	19461	19958	20474	104860	189316	211492	322647	411098	474111
5	7) SDA WEST/MIDPAC	O/G	14.607	2645	247	250	250	251	1000	191961	211740	322897	411339	474362
5	6) FASC REPLACEMNT	O/G	12.051	0	2645	2648	250	251	1000	191961	214385	325544	411589	474613
1	4) TYC-11	MIN	9.801	0	0	2200	1034	1252	525	191961	214385	327744	412623	475865
3	2) D510 COPPERHEAD	BAS	6.706	614	12841	12485	18272	27899	0	192575	227226	340229	430895	503764
3	3) AMMO BL	BAS	5.831	0	0	22743	46582	63383	0	192575	227226	362972	477476	567147
5	1) ADP CURCAP UPGR	O/G	4.896	415	402	486	570	450	75	192991	227629	363458	478046	567597
2	3) WRECKER	O/G	4.586	0	0	1430	990	660	202	192991	227629	364888	479036	568257
3	4) AMMO EL	ENH	2.915	49818	51434	50404	42079	75794	0	242809	279062	415292	521115	644051
3	5) D69T 8 IN LG	MIN	1.749	0	0	0	9356	27623	0	242809	279062	415292	530471	671674
3	6) D671 8 IN TNG	UNF	1.108	0	101	1019	1010	1004	0	242809	279164	416311	531481	672679
3	7) D60F JAMMER RD	MIN	.671	0	0	0	3654	7578	0	242809	279164	416311	535135	680256
5	8) ADPE REPLACEMNT	MIN	.490	0	0	0	13235	30087	26000	242809	279164	416311	548370	710344
3	8) M48 SMK GRENADE	UNF	.015	0	1533	0	0	0	0	242809	280697	416311	548370	710344

FIGURE 3-18. Print Costs Output for All Items, Benefit Order

```
          PRINT WHICH COST TYPE?

 1) PMC
 2) O&MMC
 3) OTHER
 4) LIFE CYCLE

ENTER THE NUMBER OF THE DESIRED OPTION: 1
          PRINT WHICH DOLLAR TYPE?

 1) CONSTANT
 2) ESCALATED

ENTER THE NUMBER OF THE DESIRED OPTION: 2
          PRINT WHICH CDPS?

 1) 100
 2) 200
 3) 300
 4) 400
 5) ALL




SELECT THE DESIRED OPTION(S):  1
REPORT HEADER:CDPS 100--ESCALATED PMC COST REPORT
TURN THE PRINTER ON, ALIGN FORMS, PRESS EXECUTE TO CONTINUE
```

The output will list the items in the set or sets selected; it will also list their package numbers, and their costs per year in the specified dollar type for the specified appropriation. Figure 3-19 shows a sample printout of a CDPS "Basic Consolidated Decision Package Set" with escalated PMC costs, and the total for each year.

Notes: (1) If ALL, LIFE CYCLE, and ESCALATED are selected, no header or cost type lines appear at the left margin.

(2) Automatic paging occurs; no CDPS is divided between pages.

CONSOLIDATED DECISION PACKAGE SETS
(FYDP $ 000)
BASIC LEVEL

PRELIMINARY PACKAGE OF 10MAR81
COST TYPE: PMC

CDPS#	PACKAGE#	MAN	CDPS/PACKAGE TITLE	FY83	FY84	FY85	FY86	FY87
100			BASIC CONSOLIDATED DECISION PACKAGE SET					
	1000	2 1	LVT PACKAGE	6050	6050	17105	17105	6105
	1001	2 2	I-HAWK	4070	4070	4070	3003	3003
	1002	3 2	D510 COPPERHEAD	614	12841	12485	18272	27899
	1003	3 3	AMMO BL	0	0	22743	46582	63383
			TOTAL	10734	22961	56403	84962	100390

FIGURE 3-19. Print CDPS Output for One CDPS

(3) The central header, e.g., BASIC LEVEL, is keyed to the first item in the CDPS. If the funding level changes from one CDPS to the next, the printer begins the new CDPS report at the top of a new page.

Figure 3-20 shows a complete CDPS Report for all programs.

3.4 Utilization of System Outputs. The use of outputs was explained in the previous sections. The reports are used for information verification, to list prioritization results, and to create the CDPS report for the POM submission.

3.5 Recovery and Error Correction Procedures. If at any time during execution of the POM-DBMS software, an INTERRUPT message appears, the user should contact program maintenance personnel. The user can attempt recovery of execution at the point of interruption by typing "→□LC", which may not correct problems but will preserve previous input. If this fails, then to restart execution, the user can type "→", press EXECUTE, type "RUN" and press EXECUTE. This sequence will return the program to the module's main menu, but may not correct problems.

A common error, ERROR 057 500, occurs when the user turns on the printer during program execution, or turns off the printer during the printing of a report. Typing "→□LC" and pressing EXECUTE will allow the user to proceed.

CONSOLIDATED DECISION PACKAGE SETS
(FYDP $ 000)
BASIC LEVEL

CDPS#	PACKAGE#	MAN	CDPS/PACKAGE TITLE	FY83	FY84	FY85	FY86	FY87
100			BASIC CONSOLIDATED DECISION PACKAGE SET					
	1000	2 1	LVT PACKAGE	6050	6406	17565	21360	10860
	1001	2 2	I-HAWK	4415	4415	4312	3245	3475
	1002	3 2	D510 COPPERHEAD	614	12841	12485	18272	27899
	1003	3 3	AMMO BL	0	0	22743	46582	63383
			TOTAL	11079	23663	57104	89458	105617
200			C4 BASIC CONSOLIDATED DECISION PACKAGE SET					
	2000	4 1	PLRS	13471	17373	35190	33375	39847
	2001	4 2	MIFASS	0	0	48787	41064	35167
	2002	4 5	GPS	0	0	0	1715	3650
	2003	5 3	IBM 360 REPLACE	13041	3111	174	174	175
			TOTAL	26512	20484	84151	76327	78838

FIGURE 3-20. A Complete CDPS Report
(Page 1 of 3)

CONSOLIDATED DECISION PACKAGE SETS
(FYDP $ 000)
ENHANCED LEVEL

CDPS#	PACKAGE#	MAR	CDPS/PACKAGE TITLE	FY83	FY84	FY85	FY86	FY87
300			C4 ENHANCED CONSOLIDATED DECISION PACKAGE SET					
	3000	3 4	AMMO EL	49818	51434	50404	42079	75794
	3001	4 4	PLRS EL	23667	18970	6838	5702	2079
			TOTAL	73485	70404	57242	47782	77874

FIGURE 3-20. A Complete CDPS Report
(Page 2 of 3)

CONSOLIDATED DECISION PACKAGE SETS
(FYDP $ 000)
OVER GUIDANCE LEVEL

CDPS#	PACKAGE#	MAN	CDPS/PACKAGE TITLE	FY83	FY84	FY85	FY86	FY87
400			OVER GUIDANCE SET					
	4000	1 3	DWTS	18465	18959	19461	19958	20474
	4001	2 3	WRECKER	0	0	1430	990	660
	4002	5 1	ADP CURCAP UPGR	415	402	486	570	450
	4003	5 2	RJE REPLACEMENT	0	4419	4427	110	112
	4004	5 6	FASC REPLACEMNT	0	2645	2648	250	251
	4005	5 7	SDA WEST/MIDPAC	2645	247	250	250	251
			TOTAL	21525	26673	28700	22127	22196

FIGURE 3-20. A Complete CDPS Report
(Page 3 of 3)

APPENDIX A

TERMS AND ABBREVIATIONS

A1.1 POM. POM stands for Program Objectives Memorandum. This is the five year plan of expenditures proposed annually by each of the agencies of the Department of Defense for inclusion in the Five Year Defense Program.

A1.2 Item. The basic element of the DBMS, for which data are collected, analyzed, organized, and reported. Each item corresponds to a distinct Marine Corps program that competes with other programs (items) for inclusion in the POM submission.

A1.3 Mission Area. Present HQMC programming practice organizes competitive programs (items) by the USMC's mission areas (e.g., close combat, fire support, tactical communications). Every item is assigned to one and only one mission area.

A1.4 Mission and Item Number. Every item is uniquely identified by a pair of numbers, M and I, that identify respectively the mission area that the item belongs to and the index of the item within its mission area. Thus item 7 3 is the third item in the seventh mission area.

A1.5 Item Number. In some contexts of DBMS use, the mission area is established first and the items are then referred to by a single number that is their index within the given mission.

A1.6 Benefit. A measure of the relative value of an item among other items without consideration of cost.

A1.7 Cost. The amount of resource needed to obtain an item or group of items. Typically, dollar costs are differentiated by appropriation.

A1.8 Life Cycle Cost. The sum of all types of dollar resources for an item or group of items. These resources typically cover procurement, operations, maintenance, and personnel dollars, and so are called collectively life cycle cost.

A1.9 Funding Level. The Secretary of the Navy's fiscal guidance for USMC POM development is given in terms of

funding levels. The Commandant of the Marine Corps must show in his POM submission the programs he would provide for three possible levels of overall USMC funding. These levels are called Minimum, Basic, and Enhanced. They are specified in guidance each year from the Secretary of the Navy. The Commandant may also submit a program showing what he would fund if given more than the Enhanced Level of funding. In doing so, he defines an "Over-Guidance" funding level. All programs that compete for programming but that are not submitted as part of any program are said to be in the Unfunded Level.

A1.10 Consolidated Decision Package (CDP). As directed by the Department of the Navy, the basic element of the Commandant's POM submission is the CDP. For many services, the CDP would be a collection of items. For the Marine Corps, each CDP is a single item. Each item that is made a CDP in the POM submission is given a unique number that identifies its position in the submission. This is called the CDP number.

A1.11 Consolidated Decision Package Set (CDPS). As directed by the Department of the Navy, all CDPs in the POM submission must be grouped into sets of ten or fewer CDPs. These sets are given unique names. They are given unique numbers that mark their position in the submission.

A1.12 Mission Benefits. Mission benefits express the relative importance of items within a mission area. The mission benefits from one mission are not comparable to mission benefits from another mission; an item with a low mission benefit in one mission area actually may be more important than an item with a high mission benefit in another mission area.

A1.13 Overall Benefits. These express the importance of items both within and across mission areas. An item with a larger overall benefit than another is more important than the other, regardless of their respective mission areas.

A1.14 Program Element Number (PEN). The program Element (PE) is the basic unit of the Secretary of Defense's Five Year Defense Plan (FYDP). Each has a unique number, its PEN. The CDPs of the POM submission are not equivalent to PEs. While the Secretary's decision making is done in terms of CDPs and CDPSs, the final decision is translated into a revised FYDP by assigning CDPs to PEs. Part of POM programming is keeping track of the PEs that each item would be assigned to if it were included in the FYDP. This is done in terms of the PENs.